

# ROTUNDA

*the magazine of the Royal Ontario Museum*

**THE GIACS  
AND THEIR  
BOOK OF  
HOURS**

**AN AFRICAN  
CHRISTMAS**

**THE ART OF  
BIRD PHOTO-  
GRAPHY**

**LANDMARK  
TRUSTS:  
VISITING  
HISTORY**

**UNEARTHING  
COLOMBIAN  
EMERALDS**

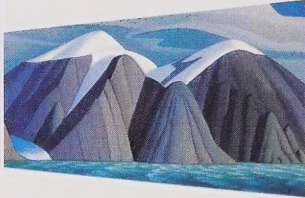




# THE STROKES OF GENIUS



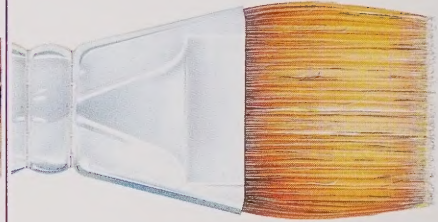
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*Lawren Harris – 1885-1970*



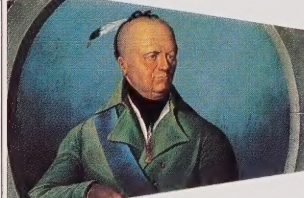
*A.Y. Jackson – 1882-1974*



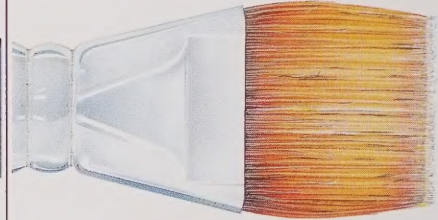
*Tom Thomson – 1877-1917*



*Franklin Carmichael – 1890-1945*



*William Berczy – 1744-1813*



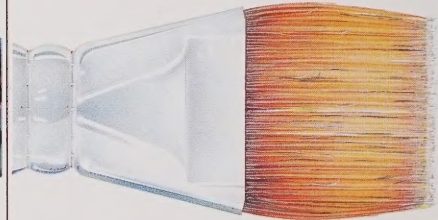
*Paul Kane – 1810-1871*



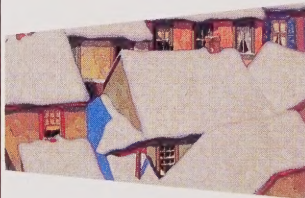
*Frederick H. Varley – 1881-1969*



*Emily Carr – 1871-1945*



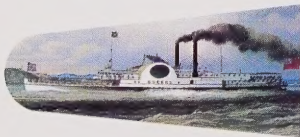
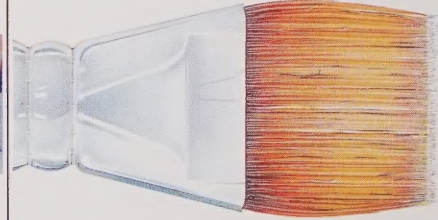
*Arthur Lismer – 1885-1969*



*A.J. Casson – b. 1898*



*Clarence Gagnon – 1881-1942*



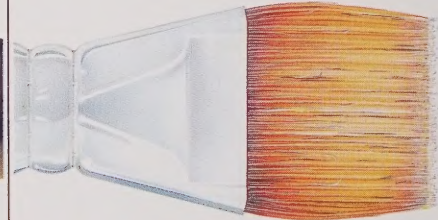
*Cornelius Krieghoff – 1815-1872*



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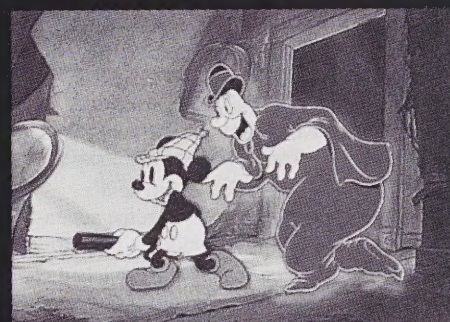
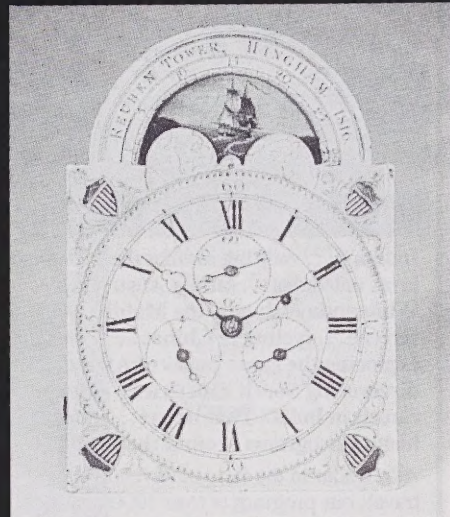
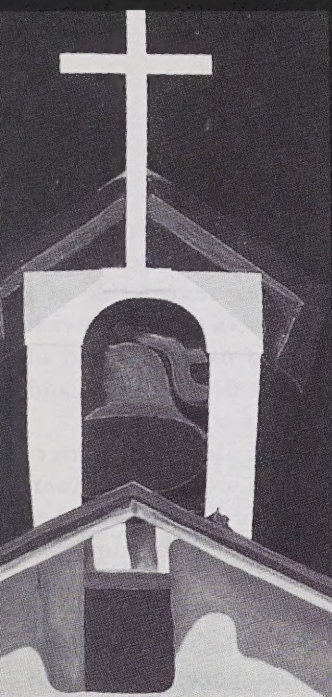


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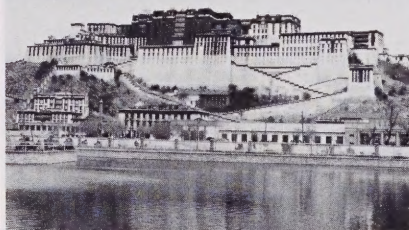
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## ✧ EDITOR'S NOTE ✧

LOOKING AT THE FEATURE stories in this issue, I am reminded of just how seductive appearances may be. The exquisite *Giac Book of Hours*, fascinating costume of an African "devil," dazzling green of Colombian emeralds, charming architectural renovations in Britain, and wonderful images of birds are perfectly splendid to behold. But while you will be captivated by their appearance you will be rivetted by the stories behind them.

Let me start with the book of hours. Before the 1960s, art historians generally studied the beautiful miniatures, like the Annunciation from the *Giac Book of Hours* on the cover of this issue, without paying much attention to the text and border decoration. As Rachel Cropsey Simons explains in her article on the *Giac Book of Hours*, by really studying only one aspect of these books, scholars were only scratching the surface of what these medieval manuscripts could reveal about their owners, where the books were made and meant to be used, and how they were crafted. From their examination of all aspects of the book, Simons and other researchers have learned much about the Gias and the creators of the *Giac Book of Hours*, now on view in the ROM's new Samuel European Galleries.

Jeanne Cannizzo, curator of *Into the Heart of Africa*, an exhibition of the Museum's outstanding collection of African artifacts, writes about taking part in an unconventional celebration of Christmas. While visiting the small village of Torwama in Sierra Leone, she was able to watch the traditional performance of a "devil's" masquerade. Although the performer's costume and gestures for this Christmas



event were spellbinding, they were even more remarkable as a symbol of the very rich and natural blend of Mende, Christian, and Islamic cultures.

Colombian emeralds are the most valuable gems on Earth as any member of a Colombian "consortium" can tell you. Although most people are attracted to the stunning beauty of these gems, for decades geologists have been fascinated and puzzled by the formation of the emeralds in a very unlikely environment. Terri Ottaway, a geologist with the ROM's Department of Mineralogy, explains the latest theories on the origins of these gems.

Gloria Varley describes her visits to some of the Landmark Trust properties in Britain, "minor but handsome" historical buildings that have been saved from demolition, restored, and made a part of their contemporary communities. Apart from finding the historical surroundings interesting and attractive, visitors who are housed in the buildings feel as if they are visiting history and are touched by it in a way that is more profound than is possible in a visit to a museum or traditional historic site.

George K. Peck, a veterinarian and biologist, explains how bird photography has progressed beyond the recording of scientific detail to a way to really see and appreciate the beauty of these creatures. This is shown by the illustrations in his article and in the photographs that will be on display at the Museum beginning 6 January.

This issue of *Rotunda* is a holiday season feast for the eye and mind. Please indulge.

*Sandra Shaul*

Sandra Shaul



# ROTUNDA

*the magazine of the Royal Ontario Museum*

Volume 22, Number 3, Winter 1989/90

(Date of issue: November 1989)

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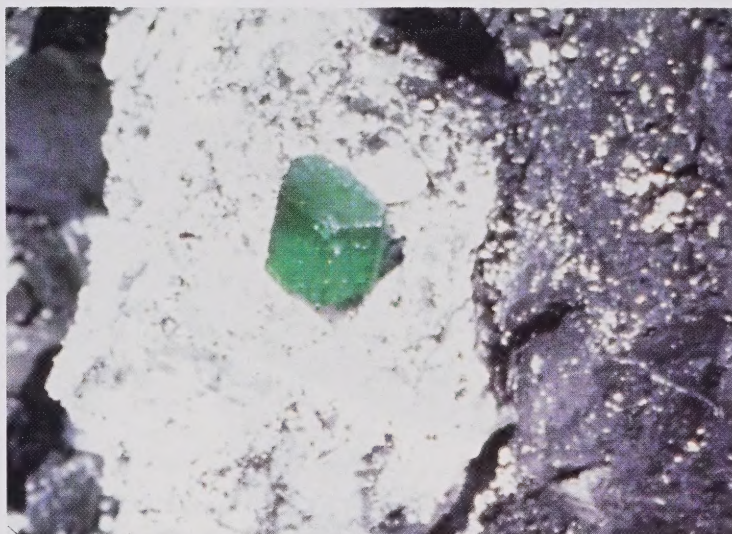


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## COVER

The Annunciation from the Giac Book of Hours in the Lee of Fareham collection at the Royal Ontario Museum. The coat of arms at the bottom of the page not only identifies the original owner but offers a clue about when the book was made. To learn more about this book of hours turn to page 31.

*Photo courtesy of the European Department, Royal Ontario Museum.*



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## CHRISTMAS DAY IN TORWAMA

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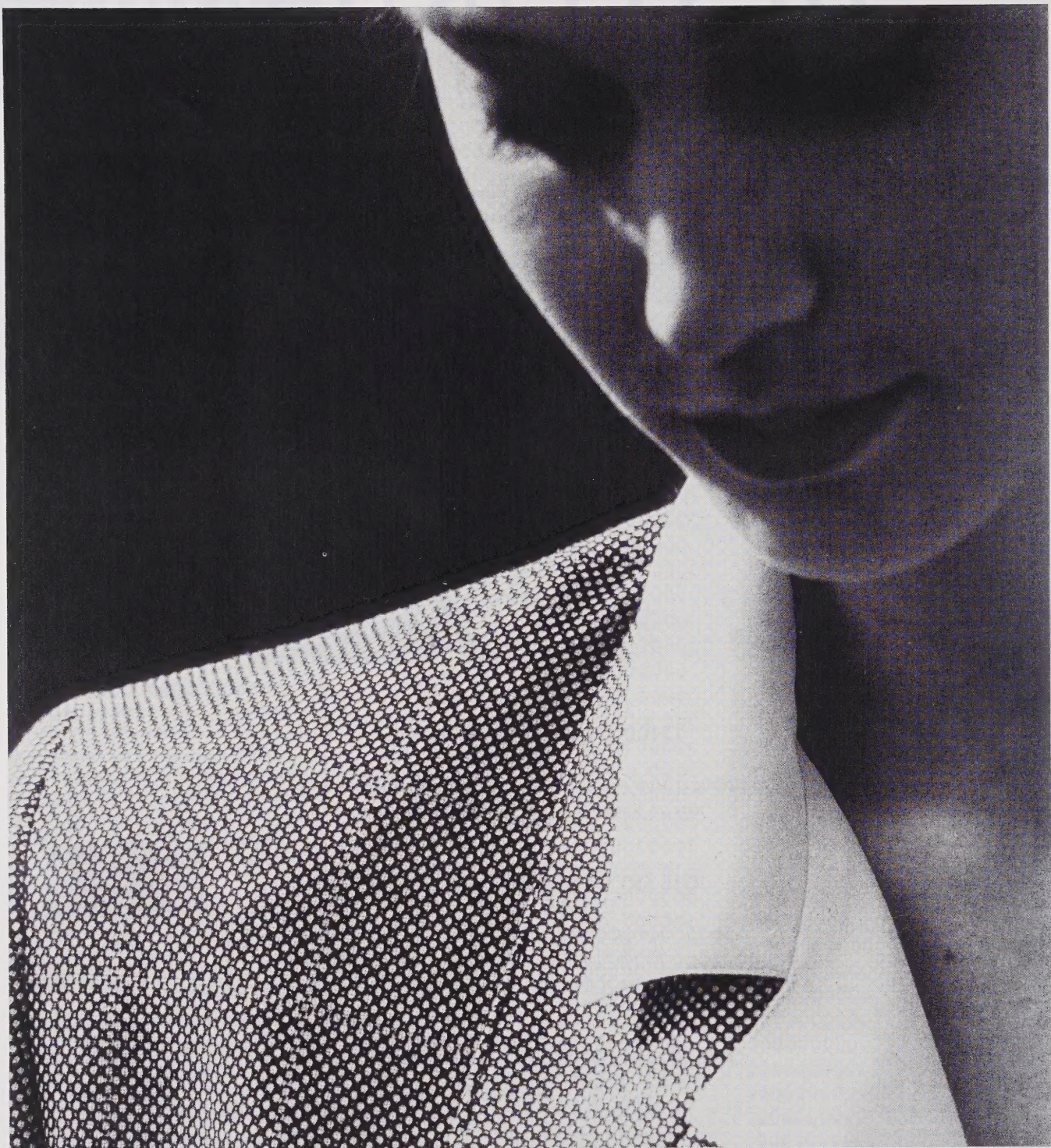


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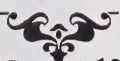
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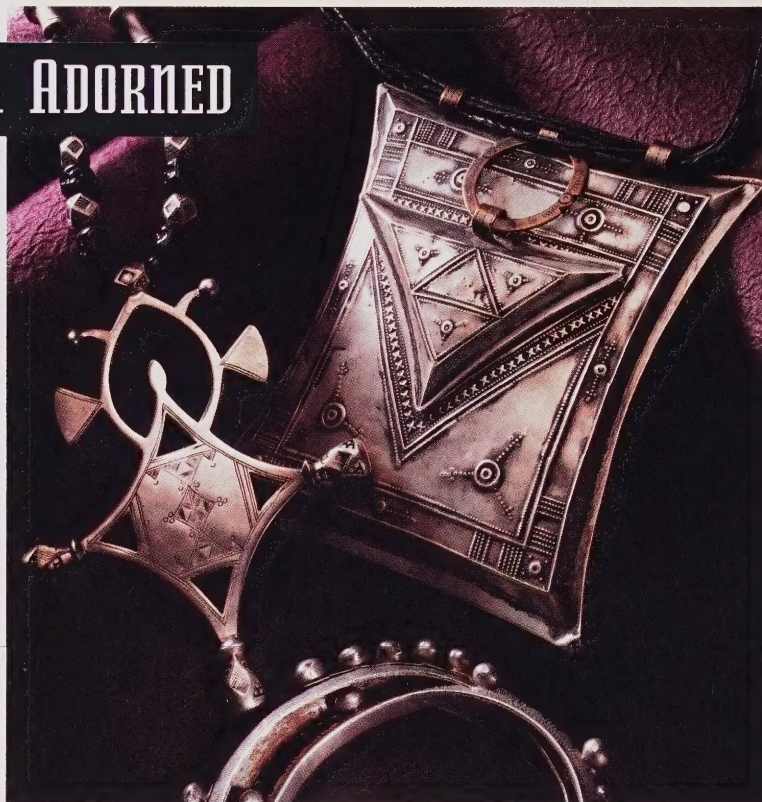
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# THE GROWING COLLECTIONS



*This dress and jacket ensemble, designed and manufactured in Canada under the Bent Boys label, is now part of the ROM's costume collection.*

## Two superb gifts update and enhance the costume collection

THE TEXTILE DEPARTMENT OF THE Royal Ontario Museum has recently been given two gifts that are very different examples of modern tailoring. Lorren Boy and Brenda Bent, a Toronto design team, donated a women's ensemble consisting of a black wool and rayon dress with matching jacket. A partially completed three-piece men's suit was donated in memory of (Ted) W. E. Lloyd.

The women's ensemble, which

was manufactured in Toronto under the Bent Boys label, is based on European fashion that has been interpreted in Canada for a North American market. It reflects the trend in the late 1980s of deconstructing an established order of forms, in this case the sartorial form. The influence of this movement can also be found in art, furniture design, and interior decoration.

Since the mid 1980s, leading fashion designers such as Jean-Paul Gaultier and Rei Kawakubo of

Comme des Garçons have combined two usually contradictory approaches — complex tailoring with draping. At the same time, they have borrowed elements from a variety of historical models, which has resulted in a very distinct fashion image for the end of the 20th century.

The Bent Boys ensemble draws upon these influences. Both the dress and jacket have the arresting detail of a hanging shoulder cap. The exposed colourful rayon "lining" is in fact a play upon the tai-



loring skills necessary to cut and attach a sleeve into an armseye. It recalls simultaneously the tie-on sleeves of the Renaissance and the puffed sleeves of the hippie era in the late 1960s and 1970s, which also alluded to medieval models. The resulting "slashed" and "hanging" effect is reiterated in the skirt of the dress with its rayon inserts. All preconceived notions of how a

jacket functions and looks are superceded by design. The design interest is focused on the sleeves to the extent that pockets have been eliminated. The donation of the ensemble, from the Bent Boys fall 1988-89 collection, brings the ROM's costume collection up to date.

In sharp contrast to the unconventional Bent Boys ensemble is the unfinished three-piece men's

pinstripe suit. This fortuitous donation was made when the premises of Lloyd Bros. Ltd., was closing in February 1988. The firm, which was Toronto's oldest custom tailoring establishment, was founded in 1904 by two brothers, Charles and William, and continued by their sons Charles and Edward. The suit serves as a record of the custom-tailoring tradition in the late 20th century, specifically in Toronto. Unfortunately custom tailoring, a craft that dates back to the guilds of the Middle Ages, is swiftly dying in North America and Europe as is witnessed by the demise of fine establishments such as Lloyd.

Unlike the purchaser of a ready-made garment, a Lloyd client would first come to the shop to choose the cloth from a selection of individual suit lengths. The client's measurements were personally taken by one of the Lloyd brothers who would also note special requirements for the suit, draft the custom suit pattern, and cut the cloth.

The cut cloth pieces were then sent to the tailor who would assemble the jacket, with its linings and interlinings; the vest was sent to the vest-maker; and the pants to the trouser-maker. This traditional division of labour accounts for the numerous stages of assembly found in the three pieces of the donated suit. The jacket is only half-made, the vest is complete, and the tracing of the trousers on the remaining length of cloth had just been started.

Both donations to the Museum are included in *Measure for Measure*, the opening exhibition in the Costume and Textile Gallery of the new Samuel European Galleries. Whereas the Lloyd suit represents traditional tailoring skills, the Bent Boy ensemble shows how modern design both builds upon and questions this tradition, thereby seeking a contemporary definition of fashion design.

ALEXANDRA PALMER  
TEXTILE DEPARTMENT



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PHOTOGRAPHY BY GLORIA VARLEY



*After the grape harvest other crops are planted beneath the vines on the hillsides of Madeira.*

## Madeira's Magic

COMING IN BY AIR FROM LISBON, A visitor spies Porto Santo first, rumbled peaks rising out of the Atlantic like a mirage. A few minutes later the sister island, Madeira, comes into view, its vegetation a moss-green carpet thrown over sharp-shinned rock. Away from the airport, the full extent of the abundance becomes apparent. Hibiscus, orchids, jacaranda, and bougainvillea give fresh meaning to the riot-of-colour cliché. Geraniums and pelargoniums tumble over walls. Roses foam from tiny dooryards. Banana plants flourish their broad fronds. This lushness proves a suitable introduction to one of the island's most famous products, madeira wine. Like the land itself, the wine began with seemingly unpromising material, then effected an astonishing transformation.

In the island's case, the beginning was a cluster of sheer volcanic peaks rising out of the ocean some 550 kilometres off the coast of North Africa, and 980 kilometres southwest of Lisbon. Various stories obscure its discovery—one source suggests it was happened upon by pre-12th-century Moslem explorers from the Iberian peninsula or Morocco; another maintains it was a chance haven to a pair of shipwrecked British lovers—but whatever the truth, formal credit for the find now belongs to Joao Goncalves Zarco, one of Prince Henry the Navigator's coterie. It was named for the thick cloak of forest that blanketed its hillsides, *maduro* being the Portuguese word for wood.

Settlers began arriving by 1425 and in order to clear the land they

set fire to the otherwise nearly impenetrable forests. Seven years later—the time it's said to have taken for the fires to burn out—the islanders were left with a base of volcanic soil further enriched by layers of wood ash. Ample moisture coupled with the truly temperate climate (which varies from a winter low of 16°C to a summer high of 26°C) made Madeira a paradise for plants. Soon seeds and cuttings were being gathered from around the world, malvasia grape vines from Crete among them.

Malvasia—corrupted in English to malmsey—is one of four so-called noble grapes used to make madeira, the others being sercial, verdelho, and boal. Each one gives rise to a particular style of wine, from bone-dry to richly sweet, a suitable drink for every occasion as



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devotees are fond of pointing out. These four are by no means the only grapes grown on the island. Unfamiliar names such as listrao and terrantez play some part in production but in terms of quantity the tinta negra mole—ranked as good rather than noble—outshines them all. This “soft black grape” (thought to be a pinot noir hybrid) accounts for more than sixty per cent of all vinifera planting. Being naturally high in acid, the negra mole takes on a different character depending on where it's grown. At altitudes as high as seven hundred metres, where cooler conditions may delay ripening, it can mimic sercial. A little lower and it resembles verdelho and boal. Finally, at the lowest levels, two hundred metres or so above sea level, where grapes ripen to the fullest extent, negra mole imitates the exotic perfumy malvasia.

Because of the land's fierce contours, grapes, like every other crop, thrive (in soil the colour of rusted iron) on minute terraces stepped up the mountainsides. Vines are trained on wood or wires criss-crossed a metre or so above the ground. Beneath them, after harvest in late August or September, are planted cabbages, beans, potatoes, and other vegetables. These in turn are gathered in late spring as the grape bunches begin to form, thus making utmost use of the land while not filching nourishment from the vines.

But grapes, vital as they are, account for only part of madeira's story. The most intriguing thing is, madeira—whatever its style—is a wine that loves to break the rules. This wasn't always so. In the early days, the island's wine was made in the usual way: grapes harvested and crushed, the juice fermented and matured for a bit, then drunk. A straightforward unfortified tippie, in other words, and probably rather rougher than most. Then history took a hand. In 1665 England's King Charles II prohibited the export of European goods to the West Indies and American



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colonies unless they were carried in British ships and from British ports. Madeira escaped the ban, it appears, because it was deemed to be in Africa, and so its wines became the only ones obtainable in the colonies.

Far from being damaged by the long sea voyage, where temperatures of 35°C or more would have destroyed most table wines, madeira actually benefitted from this unconventional treatment, becoming richer and smoother and astonishingly longlived. Later, as British interest in India burgeoned, the wines set out on still longer journeys (their barrels acting as ballast) and were found to improve even more. It became the fashion in some circles for connoisseurs to insist on madeira that had made the round trip.

With the popularity of madeira so high, shipping the wines halfway round the world and back became an economic impossibility. By the

18th century, ingenious producers began recreating the hot shipboard conditions right at home. Wines of ordinary quality were stored for up to six months, first in warm lofts, later in large containers called *estufas*, and heated to 45°C. Finer wines spent their cooking time in casks in the heated spaces overhead. During the same period, makers began to add brandy to the wine to help stabilize it and, incidentally, to raise the alcoholic content a notch or three.

Six months in the *estufa* and fortification with brandy are still the rule today. Next, depending on type, the wines spend from three to twenty or more years in cask, slowly maturing and taking on character from the wood. Some of the casks are made from mahogany grown on the island, others from imported oak, chestnut or satinwood. Another two years in bottle and madeira is deemed ready to be sold. This is the bare bones of the process; actual prac-

tice adds a number of other twists. Madeira is often blended (although its traditional system must now be changed because of EEC regulations) and it is also sometimes bottled as a single vintage. Wines of lesser quality are sold in bulk to industry, intended for canned and processed foods and hotel kitchen sauces.

This last practice can create a problem, for unscrupulous foreign dealers have been known to bottle and sell the industrial product for drinking. "Beware cheap madeira" would be a good motto for those wishing to avoid disappointment. Because of the relative rarity of sercial, boal, and malvasia grapes, and the expense of growing them in such difficult conditions, first-class madeira can be excellent value but never inexpensive. In 1989, for example, ordinary quality grapes may sell for 180 escudos a kilo, fine ones for as much as 250. In comparison, the best port grapes might fetch 150.

Madeira's unusual response to heat isn't its only strange habit. Joao Sa Fernandes, partner in a venerable madeira firm, explained some of its eccentricities. For one thing, "the wine doesn't like the cork." Not for it the long quiet days lying supine in a cellar that most other wines insist on. Once bottled, it must stand upright. Madeira also needs to be kept warm, so it's happiest stored at room temperature or above. Even 40°C won't faze it. If it does suffer a chill, madeiras other than sercial often develop a precipitate that disappears once the wine is warm again. But should the chill be prolonged, the wine must be filtered, for which Madeirans often use a clean linen handkerchief. Still more curious, madeira actually likes to be in contact with air. While most wines, once opened, demand to be drunk up rather smartly, a partial bottle of madeira can be stoppered and left for days, weeks, even months, without ill effect.

In the course of a few days, my husband and I sampled a quite as-



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tonishing range of styles and flavours. There was pale sercial, lightly chilled, dry and nutty, a perfect aperitif. Verdelho proved smooth and fresh with a touch of sweetness, classic accompaniment to clear soups. Boal was mahogany-coloured and markedly sweeter, a match for cheese, walnuts, and some desserts. From a variety of malmseys, the most haunting was an Henriques & Henriques Founder's Solera 1894 with a flowery scent and unbelievably smooth, complex, honeyed flavours. There's no question a wine like this deserves to be savoured all on its own.

Senhor Sa Fernandes reflected that madeira grapes can be grown elsewhere in the world, but then they don't make madeira wine. The soil and climate of this tiny island are vital to the magic that transforms simple juice into all too rare elixirs.

If you can spare a drop for the kitchen, madeira makes an elegant addition to many foods. Try a spoonful of sercial in consommé, or a splash of one of the sweeter sorts to deglaze the pan after sautéing steak or liver (or even hamburgers). Or do as the islanders often do and use the wine to enhance fresh fruit.

#### STRAWBERRIES IN MADEIRA

##### Ingredients

- quart box strawberries
- fine fruit sugar, to taste
- 125 mL sweet madeira wine
- chopped mint for garnish
- whipped cream (optional)

##### Method

- Hull and rinse berries, then halve or slice, depending on size. Sprinkle with a little fruit sugar and the madeira. Stir carefully, cover, and refrigerate for about two hours. Remove from refrigerator one half-hour before serving. Garnish each portion with a scatter of chopped mint and add a dollop of whipped cream if you like. Serves 4.

GLORIA VARLEY

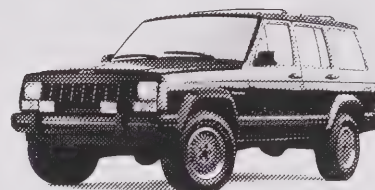
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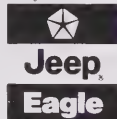
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# CHRISTMAS DAY IN TORWAMA

*Watching a devil's masquerade in a small Sierra Leone town  
was an unusual way to pass Christmas Day*

JEANNE CANNIZZO  
PHOTOGRAPHY BY DAVID STAFFORD

THE FIRST DEVIL I EVER MET BELONGED TO the Paramount Chief of Bo in Sierra Leone. It was not long after my arrival in the small African country, and I was still suffering from culture shock—afraid of malaria attacks, deadly green mamba snakes, and being left in what had been known for most of the 19th century as “the white man’s grave.”

But I felt that I had to go out one evening, well after midnight, when the drums began. It was my duty as an anthropologist interested in the masquerades







**Suddenly  
the people on  
either side of me  
fell back. I was  
engulfed in a  
whirlwind of  
raffia by a devil,  
a masked figure,  
who pinned  
me against a  
courtyard wall.  
My scream  
was totally  
involuntary,  
very loud,  
and not very  
professional**

*Previous page:  
The villagers of  
Torwama, Sierra  
Leone, gather  
on a hot, dusty  
Christmas Day  
in 1976.*

*Facing Page:  
Throughout the  
Goboi's performance,  
the musician on the left  
guided him by calling  
through a megaphone,  
while an attendant  
helped to contain the  
unpredictable power of  
the masquerade.*

and performances of the Mende people. My husband, who had come to see me settled in before his return to England, and I ventured out into the dark, following the drum beats through a maze of houses and compounds to the courtyard of the Paramount Chief. We placed ourselves, rather tentatively, at the back of a large crowd, where we naively hoped we wouldn't be too conspicuous. I was relieved to see that there were also many Mende women among the singing and clapping members of the crowd.

Suddenly the people on either side of me fell back. I was engulfed in a whirlwind of raffia by a *devil*, a masked figure, who pinned me against a courtyard wall. My scream was totally involuntary, very loud, and not very professional.

The masker, realizing that he had completely overwhelmed me, broke his cover long enough to lift his mask to give me a very human grin and a reassuring wink. Everyone else thought that my unrehearsed performance was very funny. A quick escape from the scene seemed like my only option but I couldn't find my husband. David was, in fact, shaking hands with several Mende men who were congratulating him on having a wife who knew how to show proper respect for a *devil* of the Poro society.

All Mende women know that the masked spirits of the Poro are really their own husbands and brothers. However, they maintain a social fiction: women are supposed to be ignorant of the human animator beneath the spirit's costume and when confronted by the masked figures, they respond with respect, awe, and occasionally with fear. While my scream was an over-reaction, it fell within the realm of appropriate behaviour. Although for weeks I was afraid that the scream would end my career as an anthropologist before it really had begun, my husband and I were invited to many other performances throughout the area and sometimes in other parts of the country.

Sierra Leone, a small West African state located between Guinea and Liberia, is populated by 3 million people, who belong to some 18 different ethnic groups. About one third of the people are Mende, who live mostly in the central and south-eastern parts of the country. The city of Bo, where I encountered my first *devil*, has a population of about 40,000 people. The

city is large enough to have an outdoor cinema, a hospital, and several petrol stations. Although the trend towards urbanization has caused some decline in the rural population, many Mende still live in towns and villages with fewer than 500 people.

Torwama is a fairly typical village, with about 200 people who belong to several different households and many of whom are members of related kin groups. The village can be reached by a trail leading off into the tropical forest from the main road to Bo. A few of the younger village men work as labourers and taxi drivers in Bo, but most Torwama people depend on subsistence agriculture, growing rice as their main food. They also cultivate yams, cassava, and groundnuts (peanuts). Men use heavy knives to clear the fields, women cultivate the crops, and children scare away birds and help with harvesting.

There are many different styles of homes in the village. This variety reflects the owners' prosperity or preference for traditional architectural designs. Round or rectangular wattle-and-daub houses with thatched roofs stand next to cement-block bungalows topped with corrugated iron. The homes are all strung out along a wide central avenue, although precolonial villages were circular in plan. In the middle of the village, which is kept scrupulously clean and clear of vegetation, there is a central meeting place. Here older men can hang their hammocks, and public announcements are made by the village headman. It is to this area that the *Goboi* or "devil" makes his way. And it was here, on Christmas Day in 1976, that I saw my favourite performance by a *devil*.

I had been in Sierra Leone several months conducting fieldwork on the anthropology of street performances. My irrational fears had receded, culture shock was no longer a problem, and I was certainly more comfortable with my surroundings.

The *devil's* coming was announced well in advance of his actual appearance by long, low notes blown on a megaphone and by a general commotion in the nearby forest where the *devil* was "pulled from the bush." His appearance was so striking that it is hard to know where to start to describe the masquerade.

No part of the masker's body could be seen. An immense raffia cape of palm









**Into the Heart of Africa**, a special exhibition at the Royal Ontario Museum, 16 November 1989 until 6 August 1990, comprises more than 300 richly diverse objects, most dating from 1875 to 1925, in the ROM's rarely displayed African collections. Like the mask from Sierra Leone illustrated here, the majority of the pieces are from Central and West Africa and were brought back to Canada by Canadian soldiers and missionaries who took part in the European colonization of Africa during the late 19th and early 20th centuries.

*Two young musicians accompanied the Goboï, one by playing on a bass drum more commonly found in a Western marching band and the other by blowing across the mouth of a beer bottle.*

fronds hung from his shoulders; his torso and legs were enclosed in the voluminous folds of another raffia garment; even his feet were covered. The costume whispered as the raffia straws rubbed together when he moved. Hanging from his waist and reaching to his knees was a kind of leather apron that looked rather like a Scottish sporran.

On his head he wore a rather squat cylindrical headdress decorated with a green and white checkered pattern, a white fur fringe, and a couple of small mirrors. From somewhere under this headdress leather flaps and animal-skin appendages emerged, which generally lay on the masker's chest, but at other times became disarranged and hung down his back. When on the back, they partially obscured an amazing accumulation of small wooden plaques. These were miniature prayer boards, inscribed in Arabic with verses from the Quran, or sacred text of Islam. They clacked together during the dance, which was by turns violent and subdued.

Part of the sense of awe inspired by a *Goboï* comes from its possession of "medicine," which may be a special plant or other items with supernatural or spiritual powers. These are incorporated into the costume thereby transforming the raffia and headdress from a costume into a spirit.

The *Goboï*, sometimes described as a wild spirit from the forest, gave a carefully choreographed performance that seemed to be a spontaneous outburst of superhuman energy. He unexpectedly charged spectators, only to be restrained by his attendants. He then dropped back into a characteristic stooped, lumbering walk. His helpers, dressed in distinctive costumes of checkered cloths and mitrelike headdresses, fanned the *devil*, to "cool" him, physically and ritually. The *Goboï* never spoke; his movements were directed by a musician blowing through a megaphone, which provided a low double-noted call. Viewers appreciate a good *Goboï* performance, which they treat with respect and less amusement than those of less important and more entertainment-oriented dancers.

During the Torwama *devil's* frequent retreats to rest at the forest's edge, the audience sang a wonderful variety of Mende songs—greetings and farewells, dances,

and praises for the chiefs. Some songs were in the form of calls and responses; a few featured soloists. In this performance, the musical interlude was highlighted with the rumblings of a big bass drum once used, no doubt, in a North American school marching band. The traditional *kili* or Mende slit drum was also played and many women brought a *segbura* to shake. That instrument is a rattle made of a long-necked gourd, filled with seeds and encased in a net, which is itself sewn with nuts, seeds, or beads. Children sometimes chimed in, blowing across the mouth of a prized and carefully collected beer bottle from the local Star Brewery. Everyone clapped.

The festival went on for hours in the heat and dust of the dry season. Dusk is very short in the tropics, and as night abruptly fell, the *Goboï* disappeared, returning to his "home" in the forest until the next performance, which may have been at the funeral of an important person or as part of an initiation cycle.

The Mende acknowledge the presence of a supreme but rather remote creator god, and they also believe in several other types of spirits: some could be thought of as different kinds of village ancestors; others are associated with the forest and the landscape in general; and still others correspond to the human soul. Finally, there are the spirits of the secret societies, which are given physical form in special masquerades. While some Christian converts are to be found among the Mende, and Torwama is often identified as a Muslim village, most people there continue to believe in all the supernatural beings and neither the practice of Christianity nor Islam seems to have seriously affected their continued allegiance to and appreciation of the Mende worldview and its masked spirits.

When not referred to by their Mende names, the masquerades are often called *devils*. *Devil* is a non-pejorative word in the Krio language, the lingua franca of Sierra Leone, which obviously stems from the descriptions of the English-speaking missionaries who have been active in Sierra Leone since the original colony was formed in the 18th century as a haven for Africans freed from slaving ships by the British navy.

The *Goboï* is usually considered to be one of the secular but more powerful







**Into the Heart of Africa** celebrates the diverse cultures of many of Africa's peoples. It also explores Canada's role in the European colonization of Africa.

*The exhibition's run in Toronto will be followed by a North American tour to the Canadian Museum of Civilization in Ottawa in June 1991, the Vancouver Museum in October 1991, the Natural History Museum of Los Angeles County in February 1992, and the Albuquerque Museum in July 1992.*

Imperial Oil



The Royal Ontario Museum gratefully acknowledges the generous financial support of Imperial Oil Limited and Nabisco Brands Ltd, which has made this exhibition possible. In addition the Museum gratefully acknowledges the financial assistance of the Ontario Ministry of Citizenship—Multiculturalism Strategy.



*With the Goboï's back turned to the camera, the miniature prayer boards, cylindrical headdress, and leather flap of his costume are clearly displayed.*

masked spirits of the Poro, the male secret society that is common, in different forms, in many of the cultures found along the West African coast. Having existed throughout many centuries, the Poro is the central institution to which the majority of men in Sierra Leone still belong, and it has a number of diverse functions. Writing in 1916, F. W. H. Migeod, a British colonial officer, described the Poro as follows:

*It is at once a vast club with grades separated by rigid barriers; a political society; an educating board and school for boys; a religious body comprising laymen as well as a priesthood; and it also comprises such guilds as those of dancers, medicine men, jugglers, acrobats, etc. All secular and religious knowledge and learning come within its scope. It practically represents the freedom of the nation. (Man Vol. LXI, article 102, 1961)*

Even in the modern independent state of Sierra Leone, the Poro continues to have social, political, and sometimes economic functions. One of the society's most important roles lies in its ability to transform children into adults through its initiation rituals. It is only after boys "die" in the Poro "bush school" and are reborn as "men" that they may marry and become fathers, and thus fully functioning members of society.

Each chiefdom has its own chapter of the Poro, which lends mystical or ritual support to the secular powers of the Mende chiefs, who in return protect the Poro members. The close links between the secret society and the chieftancy are acknowledged in myths about the origins of the Poro. In one story, the first Mende chief was so powerful that when he died people were afraid the news of his death would disrupt the whole nation. It was decided to keep the chief's death a secret, by deceiving ordinary people into thinking that he was still alive. Someone had to pretend to be the chief by imitating his speech impediment. With some difficulty, a select group persuaded one man to serve as the impersonator and swore him to secrecy on a powerful medicine. Gradually, other men were told the truth

and sworn to secrecy, and thus the first Poro was formed.

Many observers of the Poro have stressed its integrative functions, for it cuts across lineage loyalties, class divisions, and even to some degree ethnic boundaries. However, the Poro can also be seen as a divisive institution in that it forms hierarchies based on access to secret knowledge, which create barriers between initiated and uninitiated males, new initiates and more senior members who possess more privileged information, as well as between men and women because generally speaking, women are excluded from the Poro secrets. A masquerade such as that performed by the Goboï of Torwama helps to resolve some of the structural tensions since his public performance links initiates with the uninitiated, male and female, stranger and friend.

As the Mende world continues to change, the openness of this kind of Goboï performance is important for uniting a people facing the potential of tremendous disruption to the fabric of their daily lives. Migrants to coastal cities return home for the holidays, bringing with them their experiences, both positive and negative, of the world beyond the village. The few schoolchildren who have been sent to town for a European-style education rejoin their parents and siblings. On the day of a masquerade the rather separate worlds of men and women dissolve as everyone celebrates.

Torwama is a Muslim village where Christmas was celebrated with a traditional Mende masquerade, which predates both the arrival of Islam and Christianity in Sierra Leone. The Goboï masquerade celebrates the essential tolerance, hospitality and generosity of spirit, communal cooperation, and artistic vitality that have characterized Mende villages for most of their collective history. It also affirms the desirability and security of rural traditions in the face of Sierra Leone's increasingly modernized and urbanized society. This secular masked spirit celebrates one of the most basic tenets of Mende culture: the sacredness of communal village life. ☞

*Jeanne Cannizzo, curator of Into the Heart of Africa, a special exhibition at the Royal Ontario Museum from 16 November 1989 to 6 August 1990, is an anthropologist and research associate of the Royal Ontario Museum. She is also the resource person for the Royal Ontario Museum World Civilization Tour "African Masterpieces," 25 March to 4 April 1990, organized by the Members' Volunteer Committee.*







*The Nature of Birds:  
A Photo Essay will be on display  
from 6 January 1990 until 2 July 1990  
at the Royal Ontario Museum.*

# THE ART OF BIRD PHOTOGRAPHY

GEORGE K. PECK

LIKE ALL NATURE PHOTOGRAPHY, BIRD PHOTOGRAPHY appeals to its practitioners in different ways. For many it is simply a means of sharing their interest in birds with others. Some collect photographs of as many species of birds and their nests and eggs as possible, and a few even compile photographic "life lists." Other photographers enter their photos in competitions, and some sell their work commercially through agencies. And then there are photographers whose sole aim is to challenge their expensive equipment, for example, to freeze even the extremely rapid motion of hummingbirds and other species in flight.

Photographic technology has undergone radical changes since the days at the turn of the century when H. T. Bohlman, W. L. Finlay, H. K. Job, G. Shiras, and other pioneer nature photographers laboured with bulky view cameras, heavy tripods, slow black-and-white films, and erratic slow-speed flash bulbs whose noise alone often scared away the subjects.

PHOTOGRAPHY BY GEORGE K. PECK

*Scientific observation  
and artistic  
inspiration have been  
the main motives  
for photographing  
birds. Is the  
impending demise  
of some of these  
creatures another?*

---

*George K. Peck, a veterinarian, biologist,  
and a natural science writer and  
photographer, is a research associate of  
the Royal Ontario Museum.*



Today there are fast fine-grain colour films, precise electronic 35-mm cameras, and lightweight tripods. The light from the new high-speed electronic flash units is usually ignored by the birds being photographed. There is even lightweight alu-

#### Henslow's Sparrow

A male sparrow is shown in full song on one of his territorial perches. This inconspicuous species of sparrow is a rare breeding inhabitant of old field areas in southern Ontario.



minum scaffolding that permits photographers to get closer to nests in tall trees, and high-power telephoto lenses for subjects that cannot be easily approached. These technical advances combined with experience allow modern photographers greater freedom and time to truly see and compose their photos. As a result, bird and other forms of nature photography are emerging beyond basic recording to a form of art.

In recent years a number of bird photographers around the world have gained reputations for their outstanding artistry.



Eliot Porter, an American, used a large-format camera to shoot total-focus photos of wood warblers; Eric Hosking from Britain specializes in precise portraits of many rare species; Asian photographer Loke Wan Tho has created serenely graceful black-and-white compositions of egrets; and the late Victor Crich, a Canadian, shot richly saturated colour pictures of birds that emphasized behaviour, including courtship. All of these photographers have inspired legions of others. I was fortunate enough to work closely with Victor Crich over a period of five years.

As a biologist and a veterinarian, I originally photographed birds, their nests, and their eggs in order to keep visual records. As my photographic collection grew, I became more aware of such images as the lichen-encrusted miracle that was a hummingbird's nest with its minute details sharply etched against a soft-focus pale green background. The visual perfec-

*As my  
photographic collection grew,  
I became more aware  
of images that transcended basic  
photographic recording*



tion of birds' eggs, with their exquisite markings in subtle shades of violet, cobalt, and chocolate brown, were truly beautiful. Images of black skimmers above the sweeping curves of their ancestral beaches, contrasting with the blues of the ocean

#### **Roseate Spoonbill**

At a breeding colony in a Louisiana bayou, spoonbills were constantly flying in and out of a dead tree, their pink wings creating an unforgettable display.



### Black Skimmer

When they are disturbed, flocks of skimmers take flight in unison, their long, black and white wings producing spectacular patterns against the sky.

and sky, became more than postcard pictures when I could really grasp the essence of the scene. These and many other images transcended the mere photographic record as the camera resolved into a brush, the habitat into a palette,



and the light, form, and texture into the photographic materials.

Birds are very mobile and very wary, which makes them difficult to photograph. Places to which birds often return such as nests, roosts, and water sources provide good focal points for photographers. It is also important to have a solid knowledge of the physical appearance of each species, its habitats, and its behaviour patterns.

Although nests provide by far the best focal points, they can be very difficult to find, and even after they are located there are still problems. With the exception of a few city-dwelling birds and others that nest in the tundra, birds will not tolerate photography, even at their nests. For this reason, photographic blinds must be used.

Some blinds are small cloth-and-pole structures that are erected as close to the nest as the bird will tolerate. Responsible photographers go to great lengths to



avoid causing undue stress to nesting birds. Telephoto lenses are especially valuable, flash heads have to be skilfully positioned, and a certain amount of "garden-ing," the tying back of obscuring branches and other vegetation is also important.



**Red-lored Parrot**  
Dappled sunlight, penetrating the gloom of the Costa Rican rainforest, illuminated the soft green plumage of this parrot.

*Depending  
on the species of bird, it may  
take weeks for the  
perfect photo opportunity to  
arise*

When the set-up is complete, the photographer must secrete himself in the blind, ready to spend long hours of watching and waiting.

Depending on the species of bird, it may take several weeks for the perfect photo opportunity to arise. Heat, cold, rain, snow, wind, and noxious insects must all be endured with equanimity by the photographer, whose designation as suffering artist is no less appropriate here than in the studio. Likewise some of the more striking compositions measure extremely well against many great works of



more traditional art, and these photographic images are even more remarkable given the elusive nature of the subjects.

Of course many of the natural conditions are impossible to control, and so the photographer's artistic vision often requires a bit of luck. Such was the case one June day in Newfoundland, as I stood on the wind-swept cliffs of an island in Witless Bay that was frequented by seabirds. Located on the Atlantic coast, the bay was ringed by arctic icebergs even this late in the year, and despite the sunshine, the strong winds were very cold. Birds con-



#### Long-eared Owl

The appearance of this owl peering around a woodland tree trunk, with its forward-directed, large eyes, explains why these birds are so fascinating and mysterious to many of us.

stantly flew to and from their nests located in the huge, bustling colonies situated on the cliffs, which rise 100 metres above the water. The air was alive with wings. Then, for just an instant, two auks, a razorbill and a common murre, lighted beside

PHOTOGRAPH BY JAMES RICHARDS



each other at the very edge of a cliff, and struck identical poses. A few seconds after the camera shutter had clicked, the birds plummeted downwards to the sea.

Birds are wonderful to photograph. Their plumage encompasses all the



**Razorbill and  
Common Murre**

Near their colonies on the cliffs of a Newfoundland island, these two auks lighted together, and in the brief instant that they faced in the same direction, this picture was made.

*Before it is too  
late, we must find ways  
to save these  
lovely creatures and  
our fragile planet*

colours of the spectrum, their aerodynamic perfection is fascinating to behold, their eggs and even sometimes their nests are objects of classic beauty. It is hardly surprising that bird photographers, like all bird watchers, become obsessed with this passion—living for the next trip, the next bird, the next picture. Perhaps more than most living creatures, birds have an incredible presence. There is the singular thrill of a blue jay suddenly appearing on a garden feeder; the heartstopping impact of a scarlet tanager silhouetted against a dark oak tree in spring; the delir-



ium produced by the blizzard of wings of an immense colony of sooty terns, nesting in the Dry Tortugas Islands off Key West, Florida. In the words of photographer James Richards, a friend and colleague, his best pictures capture “a moment in time,” and are “attempts to convey a deep appreciation of the bird’s integral place in the environment.”

But there is an even more compelling reason than artistic inspiration to sustain the obsession for photographing birds. This is the conviction of some photographers that we are recording a passing scene. Each spring we note with great concern and regret the return of fewer and fewer migrants. The woods, once alive with bird song, are now quieter. We hunt in vain for the nests of red-shouldered hawks, piping plovers, and loggerhead shrikes, which were common just decades ago. Dwindling woodlots, crowded beaches, and disappearing hedgerows account for their demise. As the years pass and



**Greater Yellowlegs**

During its fall migration, this large shorebird was feeding on small fish, which it captured while striding deliberately through the green, algae-filled water of a pond.


habitats shrink or become polluted, we can't help but wonder if, in our lifetime, Rachel Carson's "silent spring" will come to pass. Before it is too late, we must find ways to save these lovely creatures and our fragile planet. ♻️



ISN'T IT NICE TO HAVE A HOBBY.







# THE GIACS AND THEIR BOOK OF HOURS

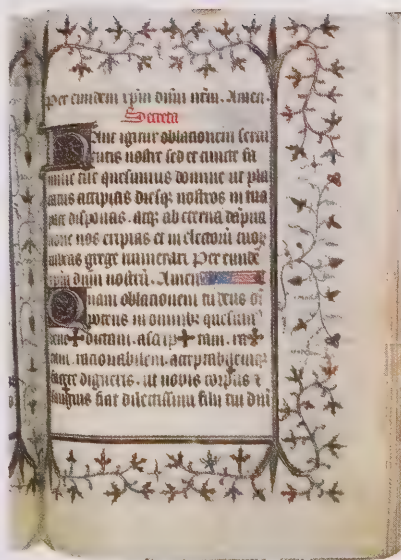
*Art historians have read between the lines to find  
the story behind a book of hours*

RACHEL CROPSEY SIMONS

THE BEAUTIFULLY ILLUMINATED manuscript known as the *Giac Book of Hours* is part of the extraordinary Lee of Fareham collection, which is on long-term loan to the Royal Ontario Museum and displayed in the new Samuel European Galleries. It was made in France in the late 14th or early 15th century by the Rohan Master, an anonymous artist renowned for the *Rohan Book of Hours*, now in the Bibliothèque Nationale in Paris.

In the 1960s, the renowned art historian, L. M. J. Delaissé, showed that all aspects of a manuscript, not just the miniatures, were important to study. The *Giac Book of Hours*, like other books of hours, consists of illustrated religious texts. Close examination of the texts, the illuminated miniature illustrations, and the minor decorations has revealed much about the owners of the book and where it was produced, as well as offered insights into the way that artists in a workshop joined together to create an object that continues to delight us today.

In 1927 the Abbé Leroquais established that a book of hours is a prayer book that was used in private devotion by lay members of the Roman Church as early as the 13th century. Because it was never considered an official prayer book, the contents vary considerably from one manuscript to another. The six essential parts, which quite often are enriched with illuminations, are



commonly found in the following order: Calendar, Little Office of the Blessed Virgin, Penitential Psalms, Litany of Saints, Office of the Dead, and Suffrages. The *Giac Book of Hours* includes these six sections and a miscellany of services, psalms, and prayers, possibly selected according to the original owner's taste.

During the late Middle Ages, people in most parts of France became extremely devoted to the saints who originated from or who performed miracles in their diocese. By noting the saints mentioned in the Calendar and the Litany of a book of hours, and then researching the diocese for which they held special importance, one can begin to determine for

whom and where the book was made, and where it was intended to be used. Hagiographies in existence by the Middle Ages included stories that suggested the diocesan association of certain saints. Hermann Grottefend's study of saints and their specific dioceses shows that saints named in the Calendar of the *Giac Book of Hours* were particularly venerated in Paris.

By 1920, Falconer Madan recognized that the inclusion and arrangement of certain prayers provide more evidence about a book of hours. Although there was an established liturgy in the Church, regional variations evolved in the texts of prayers. When noted, these variations also help to determine the local "Use" of a book of

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*Rachel Cropsey Simons is writing her doctoral dissertation on the Rohan Master at the University of Maryland.*



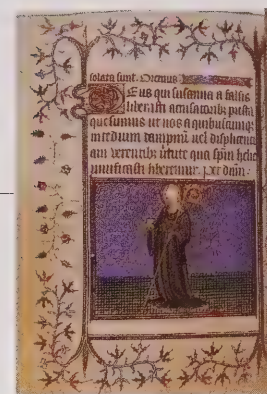
## Interpreting the Giac Book of Hours

- A cursory glance at the borders of the pages in the Giac Book of Hours gives the impression that the leaf motif was produced by one person. The motif may be based on a single model, but there are, in fact, four subtle variations on this model, which suggests that there was more than one border decorator involved.

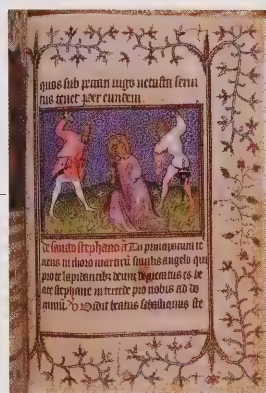
- This picture of the Madonna and Child marks the beginning of the Obsecro te, a prayer that asks the Virgin Mary to reveal when the worshipper will die and to be present with him or her at that time.

- On the right side of the picture, there is a woman standing behind the prie-dieu, privately appealing to Mary. She is presumably Jeanne du Peschin, the owner of the book of hours.

- A miniature of the Annunciation, the moment when the Angel Gabriel announced to the Virgin Mary that she would bear a son and name him Jesus, appears at the beginning of The Little Office of the Blessed Virgin. This is the most important miniature in the book of hours because of its placement.







- On almost all of the three-pointed leaves painted in the border of the miniature representing St. Claude (far left), the tips of the lateral lobes are curved. In the miniature of St. Barnabas (centre), the tips are not curved and instead the central lobe resembles a crown. And the border of the miniature depicting the martyrdom of St. Stephen (right) has three-pointed leaves with tips that culminate in straight thorns.



- The illustration of the Presentation in the Temple firmly establishes that visual models were used for this book of hours and others. Other illustrators from the Rohan workshop used the same composition for the Presentation in manuscripts now in the Bibliothèque Sainte-Geneviève in Paris and in the Fitzwilliam Museum in Cambridge. It is most likely that the Presentations were all based on one model.

- The coat of arms of Jeanne du Peschin and Louis de Giac, who married in 1376, appears in the bottom border of this folio. Louis is presumed to have died in a battle at Nicopolis in 1396. Because the coat of arms is not fitted into a diamond, the heraldic shape customarily adopted by widows in the Middle Ages, Louis de Giac was probably still alive when the book was commissioned.



hours, that is, where it was meant to be used. In the *Giac Book of Hours* prayers in the Office of the Dead suggest that the book followed the Use of Paris. Prayers in the Little Office of the Blessed Virgin suggest the more common Use of Rome. In such cases, the prayers in the Office of the Dead are considered a more accurate indicator of the prayer book's original use. The first owner of this manuscript probably lived in or near Paris.

The identity of the first owner was deduced from a coat of arms, a portrait, and the form of some prayers. The Little Office of the Blessed Virgin begins with an illumination of the Annunciation, the moment when the angel Gabriel announced to the Virgin Mary that she would bear a son and name him Jesus. Traditionally, the Annunciation was the most valued miniature in a book of hours because of its prominent placement in that important office. It is not, therefore, a surprise to find two angels supporting a coat of arms in the border of this folio. A 1934 Sotheby's sales catalogue stated that the arms belonged to Jeanne du Peschin and Louis de Giac, who married in 1376.

Purchasers of manuscripts often inserted their own coats of arms or overpainted those of a previous owner. Neither was the case in the *Giac Book of Hours*. The Giac-Peschin arms fit snugly into a gap left for this purpose in the otherwise continuous vine border decoration of the Annunciation, and there are no visible traces of other coats of arms.

A portrait in the miniature marking the beginning of the prayer *Obsecro te* implies that the *Giac Book of Hours* belonged to Jeanne du Peschin. This prayer asks the Virgin Mary to reveal when the worshipper will die and to be present at his or her side at that time. Miniatures of patrons or donors praying to the Virgin customarily accompanied this prayer in late medieval manuscripts. In the Giac miniature, a haloed Mary sits at the left and reads a book. A pair of red-winged angels hover over a reclining Christ in the centre of the composition. At the right a woman stands behind a prie-dieu upon which rests an open book; her hands are raised in prayer and no halo adorns her head. She is smaller than Mary and Jesus, a common visual indicator in that period of a lesser status. The fabric draped over the prie-dieu is decorated with the French fleur-de-lis. Presumably the figure is Jeanne du Peschin privately appealing to Mary. As well, Adelheid Heimann pointed out in 1937 that Louis de Giac's absence and the fact that many prayers in the *Giac Book of Hours*, whether in French or in Latin, appear in the feminine form would suggest that this was Jeanne's book. A notable exception is the *Obsecro te*, where the masculine form is used.

Identifying the owner from the manuscript itself is not only very satisfying, but, together with biographical information from other sources, it helps to clarify the document's history. When this knowledge is combined with research on the workshop where the piece was made and the production and histories of other workshops of the time, a clearer picture of the manuscript

and the people who were associated with it can be drawn.

Accounts of the Giacs were composed by contemporary chroniclers as well as by writers as late as the 18th century. These reports, published by P. Anselme in 1730, reveal that Louis de Giac, a knight, was cupbearer for King Charles VI in the 1380s and chamberlain for both the Duke of Berry and the Duke of Burgundy. He was imprisoned during an expedition that Charles VI made to the Netherlands, and the Duke of Burgundy helped to pay his ransom.

Louis later accompanied the duke, John the Fearless, on a crusade when the French joined King Sigismund of Hungary to fight the Turkish Sultan Bayezid. The decisive battle occurred in September 1396 at Nicopolis on the Danube River, where the Turks led by Bayezid routed their Christian opponents. Louis never returned to France, and it is thought that he died in battle. By Christmas 1396 the French knew of their defeat at Nicopolis, and by late winter 1398 it seems that all the survivors had returned to France.

A codicil, dated 23 August 1407, from Pierre de Giac, the crusader's father, stated that Louis had been in the hands of the infidels. After his son's disappearance, Pierre stipulated that Jeanne du Peschin might live with her mother-in-law, his wife, Marguerite de Campendu. Jeanne received 2000 livres in 1405 from Charles VI to help pay the expenses for the marriages of her two daughters, Jeanne and Marguerite. (The couple also had one son, Pierre.) Between 1416 and 1419 Jeanne was Dame d'honneur for the French Queen Isabelle of Bavaria, and in 1419 she was involved in peace treaty negotiations between John the Fearless, whom she supported, and the dauphin, who later became Charles VII.

The activities of the Rohan workshop were not as clearly documented as those of its patrons. In fact no manuscripts attributed to this workshop are dated. There is a general consensus among scholars (most importantly Adelheid Heimann, Millard Meiss, Jean Porcher, and Paul Durrieu) that the *Rohan Book of Hours* was made after 1416. The choice of this date depends largely on similarities noted between the *Rohan Book of Hours* and the *Très Riches Heures*, an exquisite and highly influential French book of hours decorated by the Limbourg brothers, illuminators from another workshop. The *Très Riches Heures* was unfinished when the Limbourgs died of the plague in 1416. It is now part of the collection of the Musée Condé in Chantilly.

Heimann, Meiss, Porcher, Durrieu, and Erwin Panofsky have disagreed about the date when the Rohan workshop was active. The dates have ranged from 1400 to 1470, but on the basis of style, the workshop's manuscripts were probably made from about 1410 to 1430. The figure style in the *Giac Book of Hours* and the compositions of many of its miniatures indicate with a fair degree of certainty that this prayer book is the oldest known Rohan manuscript. Heimann dated it c. 1400 while Meiss argued for a date of c. 1410. But a slightly



later date of c. 1410-1415 is more accurate for two reasons: a date of c. 1400 leaves an inexplicable gap between the production of the *Giac Book of Hours* and the remaining Rohan manuscripts—all dated c. 1413 and later. Some 15th-century clothes, illustrated in the miniatures, have been found by Anne van Buren, an art historian from Tufts University, in illuminated manuscripts made outside the Rohan workshop that can be dated between 1411 and 1415.

Yet although a date of c. 1410 to 1415 for the *Giac Book of Hours* appears reasonable based on the style of the miniatures, certain discrepancies in other parts of the manuscript make this date questionable. The *Obsecro te* is written in masculine form and the Giac-Peschin coat of arms at the bottom of the Annunciation is not fitted into a diamond, the heraldic shape customarily adopted by widows in the Middle Ages, details which suggest that Louis was still alive when the work was commissioned.

It may well be that work on the *Giac Book of Hours* was started c. 1396 to 1400, before Jeanne du Peschin realized or accepted her widowhood. Possibly Jeanne's reduced circumstances delayed this manuscript's completion until the second decade of the 15th century. One can speculate about why this manuscript may have been made in two stages but, whatever the reason, it must be kept in mind that such a situation was not unique. The Limbourg's *Très Riches Heures*, begun before 1416 was not completed until about 1485, when the French illuminator Jean Colombe finished decorating it. If the *Giac Book of Hours* was made in two stages, however, then the Rohan workshop was probably not involved with the first phase of work, since it was not active in the late 14th century. Further research may help to resolve this problem.

By interpreting the contents of the *Giac Book of Hours*, the owner, the date of manufacture, and the workshop where the manuscript was made have been more or less determined. But who exactly produced the book? The decorative borders and some of the miniatures provide some answers. This fine book of hours was not the product of one talented hand but was rather the cooperative effort of many artists, who used visual models to compose the miniatures. Valuable research on visual models has been carried out by a number of scholars including R. W. Scheller, J. D. Farquhar, L. Ayres, D. J. A. Ross, J. Backhouse, and H. Lehmann-Haupt.

Contemporary descriptions of medieval production methods are scarce. Inventories still exist which document the collections of royal households such as the Duke of Berry and Charles V, but any records of creative activities, if ever kept, do not. Learning about these activities requires careful examination and comparison of certain decorative elements in the manuscripts.

With few exceptions, the borders in the *Giac Book of Hours* are embellished with three-pointed leaves connected to vines and with calligraphic penwork that resembles shoots sprouting from the vines. A cursory glance at the borders gives the impression that one person prepared them, but a closer look shows that this is

not true. In fact there are four styles for leaves that recur throughout the *Giac Book of Hours* and each is a subtle modification of the same visual pattern or model. And there are at least two related penwork styles that rely on another shared model for inspiration. While each artist altered an existing pattern to create a personal style, each style was close enough to the model to maintain the homogeneous appearance of the manuscript.

The working method adopted to paint the borders of the *Giac Book of Hours* remains elusive. The leaves (or pages) of the book break down into gatherings. A gathering is a number of leaves arranged to form a group that was later bound with other gatherings to create a manuscript. Since multiple leaf and penwork styles coexist in single gatherings it is unlikely that individual painters were assigned to decorate entire gatherings, possibly in the isolation of their own homes. It is possible that a looser system was followed, where a small and exclusive group of artists worked intermittently on the borders in a workshop. When one artist stopped working, another would automatically replace him.

The illustration of the Presentation in the Temple securely establishes that the miniaturists as well as the border decorators relied on visual models or pattern sheets. Dressed in a blue robe the Virgin Mary supports the Christ Child, who stands on the altar while glancing back at the high priest. Behind Mary a young woman carries three small white birds in a basket. These images allude to two Mosaic laws. First, the sacrifice of a pair of pigeons was required to symbolize the purification of the mother after the birth of a child. The birds in the basket indeed refer to Mary's own purification following Jesus's birth. Second, a firstborn animal or human was to be offered to the Lord but could be redeemed with a payment of five shekels. In the Giac miniature no shekels are visible, yet Christ's own sacrificial role is implied by his prominent placement on the altar. Implicit here is the message that Jesus's birth and subsequent death made man's salvation possible.

Another member of the Rohan workshop used this same composition for a Presentation in a manuscript at the Bibliothèque Sainte-Geneviève in Paris. Heimann observed that a third and related Rohan workshop Presentation exists in a book of hours in the Fitzwilliam Museum, Cambridge, England. Sheer coincidence can hardly account for the remarkable connections among the three miniatures. It is more plausible that each relied on a shared model for inspiration.

A book of hours is a treasure house of information. After recognizing and interpreting the proper clues, an alert reader can unravel a manuscript's past from the identity of the original owner to the date and place of manufacture. It is also exciting to explore the medieval concept of creativity. Unlike the wealthy individuals for whom these books were made, the artists themselves often remain anonymous. The *Giac Book of Hours*, like most unsigned medieval manuscripts, is the product of great skill, sensitivity, and a collective effort. ☞



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# UNEARTHING COLOMBIA'S EMERALDS

*The origins of Colombian emeralds  
are no longer a mystery*

TERRI OTTAWAY WITH JOHN KENNY



*The black carbon-rich shales and limestones of Colombia's emerald mines, such as the Muzo pictured above, yield some of the world's highest quality gems.*

*Facing page:  
A hard hammer  
blow to the rock  
caused a beautiful  
emerald crystal of  
about 60 carats in  
weight to break free  
and gently tumble to  
this spot.*

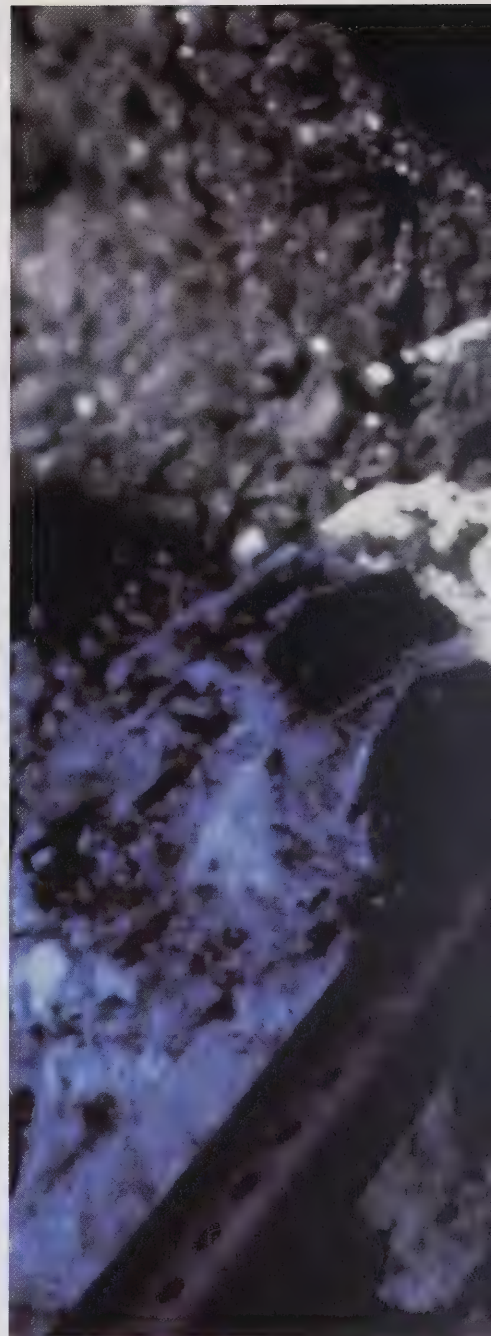
DIAMONDS MAY BE EXQUISITE, BUT when it comes to gems of exceptional value, the colour of money is definitely green. Carat for carat, emeralds of the highest quality are the most expensive gems in the world. And the finest emeralds of all come from Colombia.

Colombian emeralds are renowned for their size, their clarity, and most of all, for their rich, velvety blue-green colour. Deposits of emeralds have been mined in this part of the world for more than a thousand years. The Spanish, who arrived in the 16th century, began a worldwide trade. (They also began the decimation of the native people who were used as slave labour to mine the gems.)

Over the years, these magnificent gems found their way into the crown jewels of many nations, most notably Iran and the Ottoman Empire. Today, spectacular Colombian emeralds highlight the gem collections of many museums and private individuals. Even now, after centuries of exploitation, deposits in Colombia account for seventy-five per cent of the world's emerald production.

In terms of their geological setting, Colombian emeralds are unique. Of all the emeralds found in just over a dozen major emerald-producing locations in the world, they are the only ones found in black carbon-rich shales and limestones. The question is how did the proper ingredients come together to form emeralds in this setting?

In October 1981 I set out with Fred Wicks, curator in the Department of Mineralogy at the Royal Ontario Museum, and David Bending, a geologist, to study the emerald deposits of Colombia. In a whirlwind seven-day tour, we were able to visit the two major emerald mines, collect samples of the emeralds and the surrounding rock, and talk with local miners and geologists. We returned with about 50 kg of



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PHOTOGRAPHY BY TERRI OTTAWAY

rock samples, from which my co-workers and I have been cajoling the secret of the Colombian emeralds.

Emerald is a variety of beryl. Crystals of beryl are formed from a regular latticework of atoms of beryllium, silicon, aluminium and oxygen. The vivid green colour of emeralds stems from minor amounts of chromium and vanadium included in the crystal structure.

Like other crystals, emeralds condense from mineral-bearing fluids. To be of gem quality a crystal must possess exceptional clarity. The crystal must form slowly, otherwise it tends to be cloudy in appearance.

The key to the formation of emerald crystals is beryllium. Whereas aluminium and silicate are common substances, beryllium is rather rare and extremely difficult to transport in solution. Chromium and vanadium, the colouring agents of emeralds, are needed only in minute quantities and are common in many rock types.

Normally, emerald deposits are associated with igneous activity.



Molten granite rises from deep within the earth but it does not erupt in volcanoes. Instead it travels along fractures in the existing rock, eventually cools, and solidifies beneath the surface. Such granitic dykes are known as pegmatites. Hot, mineral-rich fluids derived from peg-

matites react with the host rock, essentially baking it. It is in this reaction zone surrounding the pegmatites that beryl crystals form from the hot, mineral-rich fluids. If chromium and vanadium are present in the host rock, they may be picked up and incorporated into the crystal structure to produce an emerald. Nowhere in the Colombian emerald belt is there any evidence of such igneous activity, however, and the minerals that are found with the emeralds are not typical of pegmatites.

The Colombian emerald belt is a rectangular area, roughly 120 km by 70 km, located northeast of the capital, Bogota. Here, on the flanks of the Cordillera Oriental, the easternmost and youngest range of the Andes Mountains, there are more than one hundred working deposits.

During the age of the dinosaurs 150 million years ago, this area was a vast swampy inland sea where life flourished. New generations of organisms were born, while the dead drifted to the sea bottom along with eroded sediment. Chemical elements washed down from the older, neighbouring mountain ranges of the central Andes. Over the eons thick layers of organic-rich shale and limestone built up.

In some areas, extensive evaporation of the sea water led to the formation of what are known as evaporite deposits. They are composed mostly of common salt and gypsum as well as concentrated amounts of elements found only in minute quantities in sea water.

By the beginning of the last ice age, only a few million years ago, compression and folding of the Earth's crust raised these sediments to form the Cordillera Oriental. The fluid and heat generated during this uplift led to the formation of emeralds in areas where sooty organic shales were in close proximity to salty evaporites.

Colombian emeralds have several identifiable features beyond their vivid colour and clarity. Of

more interest from a geochemical point of view is the presence of fluid inclusions, tiny pockets of liquid collected along fractures that later healed.

Although on average only one-twentieth of a millimetre in diameter, the fluid inclusions in Colombian emeralds are exceptionally large. In addition to liquid, these inclusions normally contain crystals of common salt and a bubble of gas. Trails of the tiny inclusions along a healed fracture form wispy veils in the stone. The presence of veils is not seen as a major flaw: they are a way of distinguishing natural emeralds from synthetic ones.

The fluid inclusions represent a sort of "smoking gun," because they contain a sample of the original solution from which the emeralds formed. By analyzing the inclusions the fluids can be more accurately described. For example, it was found that the salt crystals within the inclusions would dissolve into the fluid at an average temperature of 324°C (550°F). Because all the components would have been in solution when the emeralds were forming, this measurement represents the



*Bulldozers are used to expose the white calcite veins where emeralds are found.*



*The exposed calcite veins are drilled as miners search for emeralds.*



*When flecks of green from tiny emeralds begin to show, the head of the consortium takes over.*



minimum temperature at which the emeralds would have crystallized.

Most of our field work was conducted at the Muzo Emerald Mine on the northwestern edge of the emerald belt, where the host rock is sooty, dark black shale. A network of thin veins of white calcite cuts through the shale. It is within these calcite veins that the emeralds are usually found. The overall appearance is quite striking: the stark white of the calcite veins running through the midnight black shales, with the occasional flash of green.

Distributed randomly through the shale are areas known as *Cenicero*. They are roughly circular in shape measuring from 2 to 5 metres across. The term *cenicero* comes from the Spanish word for ash, an appropriate

### *Collecting the Stone is not so Romantic*

FIELD WORK OF ANY sort is always something of a challenge. Trying to collect emerald samples in Colombia was a special kind of adventure.

We were met in Bogota by our host and intermediary, Senor Gonzalo Jara, an emerald dealer. He briefed us on what we should and should not do. When at the mines or with a dealer, always keep your hands in sight. In particular never walk into a room with your hands in your pockets. Never turn your back on a person while holding his emerald. And never, never drop an emerald. Gonzalo should know the rules: his boss was gunned down in a Bogota cafe.



*The consortium's armed guards constantly watch the miners.*

Violence has never been far from the emerald business in Colombia. As recently as the early 1970s the Muzo Mine was forced to close because of nine hundred emerald-related murders in one year. Our trip into Muzo was by helicopter because it was much too

dangerous to drive.

Each mine maintains a security force to prevent poaching by locals and theft by the miners. Nevertheless, about eighty per cent of Colombian emeralds become available through the black market.

Occasionally the security forces are used in skirmishes and vendettas between rival consortiums at

different mines in the same area. Recently many of the staff of the Muzo Mine, including some who had assisted us, were found murdered. Fortunately, when we were there conditions were favourable, production was good, and everyone was too busy to fight.

name for this loosely cemented, greyish, sulphur-rich rock. The *Cenicero* appears to have been a zone of shale that has been subjected to extremely high heat. The thin bedding layers in the shale have been obliterated and no organic matter remains. It is significant that most of the calcite veins radiate from the *Cenicero*, which seems to have served as a conduit for the mineralizing solutions.

The mining at Muzo is a somewhat reckless affair. The property is actually owned by the Colombian government, but it is leased to a private consortium. The consortium has been given five years to extract as many emeralds as it can. As a result, bulldozers and dynamite are used to break up and clear away the shale. These methods are not particularly well suited to the fragility of emerald crystals, and many lovely gems are shattered in the process. Nevertheless, once a calcite vein is exposed, jackhammers and picks take over. If the calcite begins to show signs of promise, the excitement grows.

A scene I witnessed one morning is typical. The vein being worked by a group of miners began to show flecks of green. A senior partner



in the consortium was called over along with several of the mine guards. After a couple of swings with his geologist's hammer, a perfect, grape-sized emerald crystal tumbled out, glistening in the morning sun. Immediately the guns of the guards came up to the ready. We were allowed just enough time to take a picture before it was popped into a canvas bag and whisked away under heavy guard. Everyone returned to work. Later that evening the crystal would be sorted along with the rest of the day's production.

We were fortunate that several productive veins were being worked at the time of our visit. Although Muzo is the largest of the Colombian emerald properties, production can be erratic. Months sometimes pass

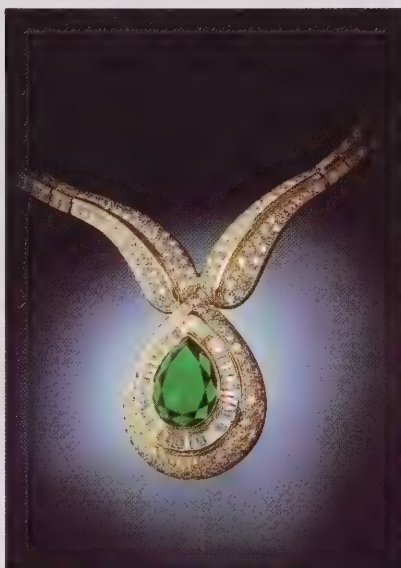
### *Famous Colombian Emeralds*

THE SPANISH BEGAN LARGE-SCALE emerald mining in the 16th century. Many of the emeralds found were traded to India.

The 217.8-carat Mogul is one such stone. The front of the stone is carved with a floral motif and the back is inscribed with an Islamic prayer and the date 1695. The gem was probably worn as a turban ornament.

The Spanish Inquisition necklace contains 15 large emerald beads, as well as 360 diamonds. According to reports, the necklace was worn in the Spanish and later, the French courts. It is now in the collection of the Smithsonian Institution in Washington, D.C.

The Smithsonian also houses the spectacular 75-carat Hooker emerald. This stone is extraordinary not only for its size, but also because it is remarkably free from flaws. The Hooker has a square cut



*This emerald weighs 14.52 carats.*

common for emeralds, which enhances the light path inside the gem that best brings out its colour.

Fine large emerald crystals are quite rare. Because of their ex-

tremely high value, such crystals usually find their way to the gem cutter's bench. There are a few exceptions though.

The Patricia emerald in the American Museum of Natural History in New York City is one example. This 632-carat crystal was discovered in 1920. The blast that revealed it destroyed a pocket containing fragments of a crystal that was probably even larger.

The vaults of the Banco de la Republica in Bogota house a collection of five spectacular crystals ranging in size from 220 to 1796 carats. The finest is an extraordinary 1759-carat stone with magnificent colour and excellent crystal form.

The largest single emerald crystal from Colombia is the 7025-carat Emilia, which was found in 1969. Its current whereabouts are unknown.

with few, if any, emeralds being recovered. We were able to collect several key emerald specimens as well as samples of the veins, shale, and *Cenicero*.

The work of an ore deposit geologist is in many ways like that of a detective. The mineralizing event itself has long since passed. We have only traces, tantalizing shreds of fossilized evidence, preserved in the rock from which to construct our theories.

For decades geologists have assumed that since other worldwide emerald occurrences are associated with igneous activity, the mineralizing fluids that produced the Colombian emeralds must also have had their origin in some igneous event. This theory, however, simply does not fit the geological evidence. My research suggests a very different theory for the formation of Colombian emeralds.

When they were deposited, the sediments and evaporites that make up the Cordillera Oriental contained an appreciable amount of water. The forces that built the mountain range both heated the water and



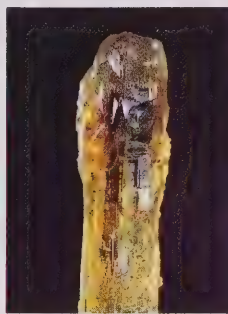
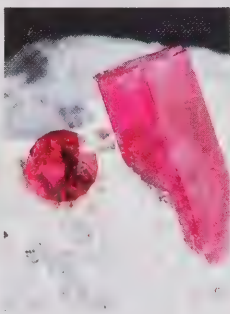
squeezed it out of the rocks like a giant squeegee. The water naturally dissolved material from the evaporite beds, producing hot, mineral-rich brines. Differences in heat and pressure drove the brine along the lines of least resistance: the faults and cracks that developed during the folding and uplift of the mountains.

When the hot brine encountered organic matter that had been altered by heat in the shale, sulphate groups in the brine underwent a chemical reaction that generated a great deal more heat and turned the solutions quite acidic. The result was the formation of the *Cenicero*. The organic carbon in these areas was consumed in the process and converted to carbon dioxide. Trace elements such as beryllium,

## *Emeralds and Other Beryls*

ON ITS OWN, BERYL IS A colourless mineral. Trace amounts of other metals impart colour to the crystal. When chromium or vanadium substitute for aluminium in the crystal structure, they impart a green colour to the stone, making it an emerald. These

so-called chromophores represent between 0.01 and 0.3 per cent by weight of the crystal. Chromium and vanadium are not the only chromophores that can be found in the beryl structure. The additional presence of iron in African



*Aquamarine crystal; red beryl crystal with cut gem; heliodor crystal*

emeralds gives them a more grass-green colour.

On its own, iron can give beryl a brilliant yellow colour. This variety is known as heliodor. A more familiar variety of beryl is aquamarine. The blue colour of aquamarine is

also caused by iron, though in a different chemical state.

Manganese is responsible for the pink beryl known as morganite. A deep red beryl found only in Utah is also coloured by manganese.

Emerald, aquamarine, morganite, heliodor, and the colourless goshenite are all beryl. They have the same chemistry and crystal structure, except for the trace elements that give them their colours. The ROM has a beautiful collection of these different coloured beryls.

chromium, and vanadium, which had been bound by the organic matter, were now released and could be transported by the acid solutions.

Meanwhile, the buildup of carbon dioxide created a great deal of pressure. This caused the solutions to be periodically blasted out into the surrounding shales. The host rocks slowly neutralized the fluids until beryllium and the other trace elements were no longer stable in solution and began to precipitate out. Thus beryls began to crystallize from beryllium, aluminium, and silicate, gaining a beautiful green colour through the addition of chromium and vanadium.

Fluctuations in the amount of chromium and vanadium available to the growing crystals resulted in large differences in the intensity of colour from one emerald to the next. Pale green crystals in one vein valued around \$500 per carat are found adjacent to veins containing vivid blue-green crystals commanding a value of \$20,000 per carat.

And so from a primeval swamp, from mucky black rock and hot brine, came the Colombian emeralds, gems that would adorn the rulers of many nations, that would incite men to fight and even to kill to possess them, and that would enchant us with their beauty and aura of adventure and intrigue. ☘

Find out more about the ROM's Gem of an Auction, which will raise money for the new S. R. Perren Gem Room. Call 586-8009.





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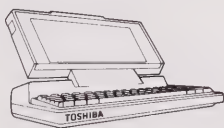
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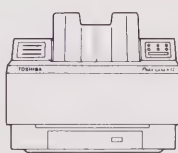
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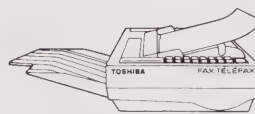
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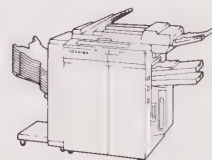
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WHILE THEY HAD THREATENED US THE NIGHT BEFORE, the real invasion came next morning. Waddling over the drawbridge in bright orange gumboots, they laid siege to the castle. We capitulated immediately.

These attackers were hard to resist: three stout Aylesbury ducks, their plumage not really white but a subtle shading of creams and butter yellow. Their de-

mands were simple. Like Audrey, the insatiable plant in *Little Shop of Horrors*, the cry was "Feed me!" Under the cold gleam of a Somerset full moon, their raucous "Waaaaak, waaaaak," rising from the dark waters of the castle's moat, had sounded positively unnerving. At breakfast time the notion that spirits might

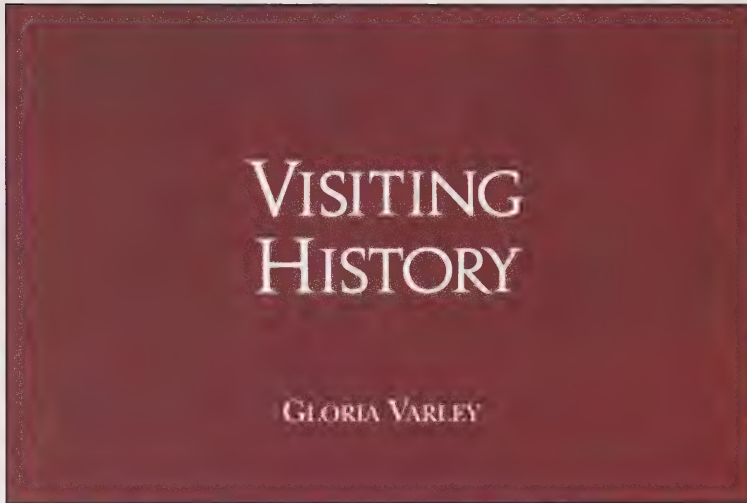
be sharing our holiday fell before the prosaic reality of ducks partial to Hovis bread and chopped apple.

But if my husband and I were disappointed in our ghosts, that was the only disenchantment we suffered in visits to three of Britain's Landmark Trust properties. The ones we sampled were widely varied: a medieval hall in Suffolk, a turn-of-the-century flat in the heart of Oxford, and the aforementioned castle, whose earliest trace—the mound—dated from 1100. We might have chosen a whimsical, pineapple-shaped folly in Scotland or a former almshouse in Yorkshire. For travellers with a taste for history, archaeology, exploration, and great swaths of peace, the Trust offers more than one hundred ways to appease their appetite.

The Landmark Trust is a charitable foundation established in 1965 by London banker John Smith primarily to undertake work which is, in his words, too small, too desperate or too peculiar to be pursued by the National Trust. Dismayed by the number of interesting and potentially useful buildings that were fading into decay, being torn down or mercilessly modernized, he resolved to do more than merely fret about the situation. His achievements have been so impressive that he was knighted in the Queen's 1988 Honours List.

Sir John's concern is a model of enlightened activism. Together with his equally committed wife and their colleagues, he has made the Trust into a force for sane preservation in a world that too often seems bent on "progress" at any price. Buildings come under Trust protection in a variety of ways. Some are bought outright;

*Britain's  
Landmark  
Trust  
properties  
bring  
the past  
into the  
present...*



---

*Gloria Varley is a Toronto-based writer  
currently living in England.*



others are held on long leases from owners similarly dedicated to the cause. At least one was acquired when the guest at an existing Landmark noticed it was for sale and sent in a snapshot-accompanied recommendation. Many had fallen into near ruin before diligence and plain hard work restored them.

Take the New Inn, for example. To see it now, a mel-  
low adjunct to the  
Suffolk village of  
Peasenhall, it's hard to  
imagine that only  
twenty years ago it  
had been declared  
unfit for habitation,  
its medieval character  
all but hidden by later  
additions and alter-  
ations. The local dis-  
trict council acquired  
the haphazard collec-  
tion of cottages into  
which the hall had de-  
clined and, fortunately,  
investigated its his-  
tory before ordering  
demolition. As a re-  
sult, the buildings  
were transferred to



the Trust. In 1971-72, at a cost of £32,000, the Trust brought them back to life.

When truly new in 1470 the inn consisted of an arched and beamed great hall with a central hearth. Living quarters for the family and guests were in a cross-section at one end, with service quarters and pantries in a corresponding section at the other. Underground was a large cellar for brewing and storing ale, while kitchens, stables, barns, and haylofts around a rear courtyard completed the complex.

In the hall, the very heart of the establishment, guests would have been welcomed, meals taken, stories exchanged around the fire at day's end. Quite unexpectedly, for one evening of our stay, we were able to capture at least some sense of what these convivial gatherings may have been like.

Normally, the hall is common ground for Landmark tenants. Coming in from outdoors, all must cross it to gain access to their quarters, just as inhabitants would have done five hundred years ago. Guests staying in the adjoining New Inn Cottage—and indeed the public in general—may also come and go freely. It is a great, somewhat austere room, its former hearth indicated by markings on the floor, its space empty except for a massive chest against one wall and a substantial table and benches in the centre.

The other New Inn tenants, a group from London, were celebrating a birthday and, in a fit of generosity (or out of fear we might complain if festivities grew boisterous?) invited us to take part. At eight o'clock we entered

**On the brink of demolition in the early 1970s, the medieval New Inn, located in the village of Peasenhall, Suffolk, was rescued by Britain's Landmark Trust.**



a great hall transformed. The table was laden with evergreens and holly. A profusion of tall candles gleamed and flickered. Calor gas heaters stood in for the original fire (and probably provided more warmth in this otherwise unheated and draughty space). While the menu, strictly speaking, was not medieval, the quantity and elaboration of the food more than made up. We feasted, told tales,

sang songs while one of the group strummed his guitar, and felt ourselves most happily transported back in time.

To begin the process of rescuing and reconstructing the hall, architect John Warren (with advice from an expert on timber-framed buildings, Reginald Mason), supervised the stripping away of all the later ceilings, plasterwork, and so forth and discovered that much of the original frame survived, albeit in a weakened condition. Rafters were removed so that the frame could be braced. For the rest of the renovation old materials

*...a task*

*accomplished  
through  
diligence and  
plain hard  
work...*



The 16th-century Moot Hall, in Aldeburgh, was an inspiration for the sets of Benjamin Britten's opera *Peter Grimes*.

were retained wherever possible, including some original wattle-and-daub panels in a wall partition. Where wood had to be inserted it was left unfinished to make quite clear the distinction between old and new. Some of the other cottages were also preserved, but many of the outbuildings were demolished to create a courtyard. Later still, the Trust bought the triangle of land in front of the New Inn, and so guests staying in the main building or New Inn Cottage now overlook what has become the village green.

This situation is symbolic of the way Landmarkers can be drawn, at least a little, into local life. Most places are well away from the more popular tourist haunts, and visitors tend to be looked on as interesting diversions rather than tiresome interlopers. Local butchers and fishmongers take time for a chat. Grocers are happy to explain the differences between one farmhouse cheese and another. You may even be asked, as I was, to make the draw for a village raffle. Who, after all, could possibly be more impartial than a stranger out shopping for supper?

Coziness such as this is pleasant, of course, but it's far from the main purpose at the Trust. That is intended to be an experience of history in a broad sense, the history of the place itself and of its surroundings. New Inn, for example, is a short drive from the Sutton Hoo burial mounds whose 7th-century treasures—called the greatest of all British archaeological discoveries—now lie in



...that  
restores old  
properties  
to life...

the British Museum. It's also close to Aldeburgh (of festival fame) where the 16th-century Moot Hall, a beautiful building of rosy brick, provided inspiration for the sets of Benjamin Britten's opera *Peter Grimes*. The hall, incidentally, used to be in the centre of town but *The Companion Guide to East Anglia*, thoughtfully provided on the New Inn's bookshelf, describes how the town was "devoured by the sea, including all of Roman Aldeburgh," leaving the hall stranded, literally, on the shoreline.

Still very much at the heart of things is the Landmark flat on St. Michael's Street in Oxford. Located on the first floor of what was once the residence of the Oxford Union's steward, its generous proportions and civilised turn-of-the-century atmosphere make an ideal base for exploring the city or indulging in a spot of scholarly research. Like all the Trust properties, St. Michael's Street is furnished in a style that suits its age. In this case that means handsome William Morris papers on the walls and even some of the original furniture.

The Morris papers seem particularly appropriate when one discovers that the Union, built as the home for Oxford's debating society in 1856, has paintings in its gallery window bays by Morris (described as "a rather rough and unpolished youth"), Dante Gabriel Rossetti, and Edward Burne-Jones, among others, done during one of their long vacations. The restoration of this original debating chamber—now the Union library—allowed the Trust to stake a foothold in Oxford. In return for a contribution, the Trust gained a floor and a half of space for visitors to stay.

In common with all Landmarks, St. Michael's Street has a comfortable lived-in look, far removed from neutral hotel modern. Each place has shelves lined with books relating to regional history and the natural sciences, as well as novels or poetry that have some connection to the locale. Drawers hold games and jigsaw puzzles. Kitchens are well furnished and heating systems efficient. It's very, very easy to feel instantly, completely at home. There are logbooks at each property, in which visitors are encouraged to record their impressions, that give ample evidence that we weren't alone in our opinion. One person commented, "To have lived in a building, even for one short week, whose traditions reach so



The flat on St. Michael's Street, Oxford, was once the residence of the Oxford Union's steward.



far back in history has been a worthwhile experience."

Happily for such devotees, additional Landmarks are slowly but steadily being added to the inventory. We visited one undergoing restoration—Gurney Street Manor in Somerset—and spent a fascinating hour being shown round by the foreman Philip Ford, a veteran of three previous projects. A knowledgeable, gregarious man

whose heart is clearly in his work, Ford took us through the property, room by room and year by year. The first house on the site dates from about 1350, and there were later additions up until 1539 when the owner put a sudden stop to things by murdering his wife and her sister and then killing himself. After that the house changed hands a number of times, ending up by 1980 divided into a series of flats, which a developer had let run gently downhill. Restoration began in 1984 and, according to Ford, held all the allure of a good detective adventure as accretions were carefully peeled away to reveal the building's past. A 13th-century stone head, believed to be of a king, was found crammed into a fireplace. The private chapel has had the remains of its bright medieval paint conserved. A dog turnspit was discovered set into a wall beside the kitchen

*...they draw  
visitors into  
local life  
while  
housing them in  
period  
surroundings...*



Gurney Street Manor, in Somerset, dates from about 1350. By 1980 it had been divided into flats and allowed to run down. Restoration work began in 1984.

hearth, its circle so small (perhaps 60 cm) that it must have employed a very tiny dog indeed. Outside, a covered walkway or pentice links the kitchens with the hall across the courtyard. Throughout, the quality of craftsmanship that goes into these restorations is awesome, the finished work a delight to behold. For example, in one part of the building, according to Landmark historian Charlotte Haslam, new collar trusses have been made from single pieces of oak, then shaped with an adze. The Manor is still some months from completion, but already Landmark fans are signing up for its first year.

These people have discovered the Trust's special appeal: a sense of connection to the past, of continuity over time, of life that goes on despite wars, rebellions, fires or floods—not a bad lesson in these fragmented days. They have also discovered that living with history is very different from gazing at it from the wrong side of a glass case or a crowd-control barrier. A museum's recreation of an Elizabethan hall or a historical building's carefully set-up Victorian parlour, interesting and valuable as these may be, simply can't compare with actually



...this offers  
a sense of  
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the past, of  
continuity  
over time—  
not a bad  
lesson in these  
fragmented  
days

living in a place that has been occupied—sometimes for centuries—by other humans who have opened the same doors and fetched wood for the same fires. Even in places that weren't originally habitations, the mills and mines, railway stations and water towers, one can catch a ghostly glimpse of life in former days.

It's tempting to wonder whether somehow, someone might manage a similar scheme in Canada. The Trust never removes from the market buildings that are suitable for full-time housing, but that has still left them with plenty of scope for rescuing an astonishing range of places "minor but handsome," as Sir John Smith describes them in his introduction to *The Landmark Handbook*. What buildings might there be here, now suffering the indignities of neglect, that could help visitors appreciate Canada's heritage? Some will be remote, but that may be a positive asset, for the Trust finds that some of its least accessible properties are the most popular. One thinks of abandoned railway stations and pioneer homesteads, old churches and schoolhouses, country stores, barns, lighthouses, disused factories, and warehouses. There are no doubt many others, perhaps not quite as exotic or ancient as some of the Trust's, that could nonetheless help give us a living sense of the past and a healthy respect for the powers of renewal.

From his long years of experience, Sir John Smith sums up the case very well: "Those who care about our surroundings fight under a handicap. When a fine building is demolished, or a fine place spoilt, that is the end of the matter; whereas the destroyer, if foiled, can always try again. To win at all we have to win every time, whereas the forces of destruction need only win once. We are inevitably on the defensive...and it is all too easy for those who destroy to represent those who care as backward-looking and obstructive. But the reverse is the truth.... Far from being something restrictive, preservation is now constructive, and creative as well, and those who care about the environment are in fact in the vanguard of progress." ❧

Anyone interested in unusual and rewarding holiday accommodation can obtain the fully illustrated Landmark Trust Handbook for £6 by writing to the Trust at Shottesbrooke, Maidenhead, Berkshire, SL6 3SW, England.



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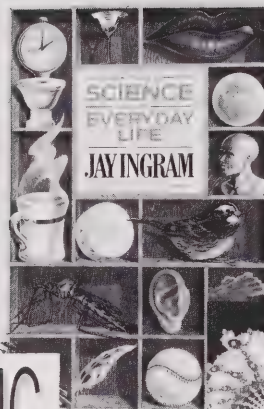
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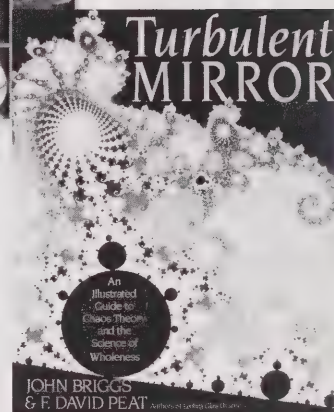
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## BOOK REVIEWS



## INVENTING THE FUTURE

DAVID SUZUKI



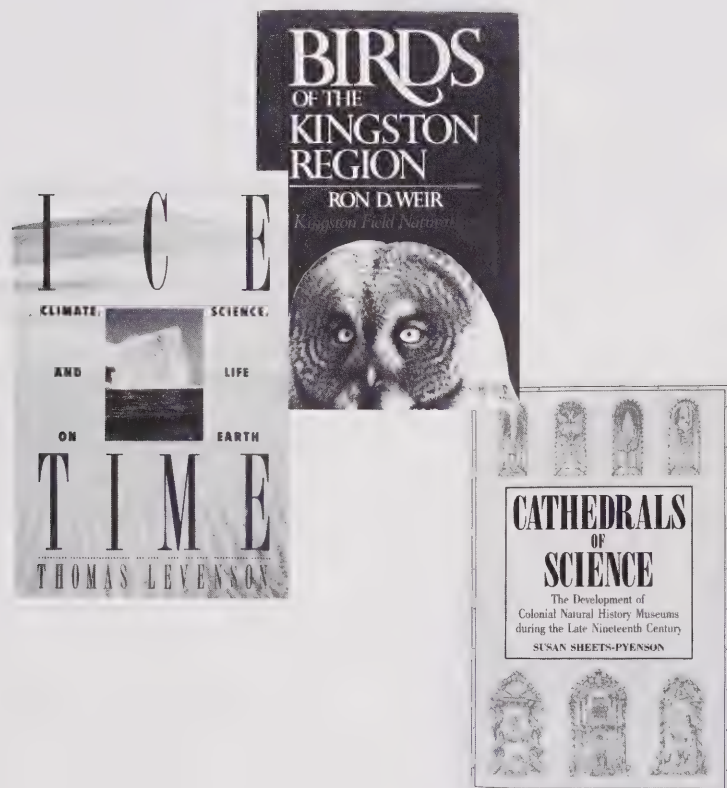
One of the great strides made in the propagation of science in Victorian times was the emergence of the scientist-popularizer, who recognized the need to communicate directly with the general public about work in the lab or about science generally. Ever since then, the best-known scientists have been the ones best able to make themselves understood to intelligent laypeople. It's no coincidence, for example, that the most comprehensible book on Einstein's General Theory is the one he wrote himself for ordinary readers. As science has retreated into ever more narrow specialties, the need for such popularizers has increased, but then the opportunities have grown, too, thanks to the mass media.

David Suzuki is probably

Canada's most practised science-explainer, though he's part of a long tradition that stretches from Wilder Penfield to Sir William Osler and all the way back to Grant Allen. *Inventing The Future: Reflections on Science, Technology and Nature* (Stoddart, 247 pages, \$24.95 cloth), his latest book, is fresh evidence of the way his desire to communicate has always run parallel to the lure of research. Although he has published widely and often, and is especially well regarded for the way he addresses young adults, this is his first gathering of serious essays. The pieces delve into certain aspects of genetics (his research and teaching specialty) but at their most typical discuss the relationship of science to big business or big government: all the concerns so familiar from his



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years of broadcasting.

Suzuki's high profile was at its highest in the 1970s, when he was seen on several CBC shows at once—"The Nature of Things," which he still hosts, "Suzuki on Science," and "Science Magazine," to say nothing of the long-running radio program, "Quirks and Quarks." The last of these, being purely auditory, no doubt called for a special expository technique. That skill is what lies at the back of *The Science of Everyday Life* (Viking, 208 pages, \$19.95 cloth) by Jay Ingram, who has been the host since Suzuki left the job in 1979.

As the title suggests, the book is about the scientific subtext of daily existence. Each of the two dozen little familiar essays is in a distinct voice, midway between Mister

Wizard (remember him?) and Stephen Jay Gould. The pieces veer into many different disciplines, from psychology and anthropology to medicine and physics, always straining for that note of commonplace relevance favoured by journalists of this type. A quick and semi-semiotic look at the Road Runner cartoons, for example, points up that one of their creator's conceits—the way Wile E. Coyote runs off a cliff and goes straight out into the air for a way before crashing to earth—is consistent with the thinking of Avicenna, the 11th-century Arab philosopher.

There's a little gem of a setpiece on "The Evolution of the Teddy Bear," showing how the popular stuffed toy, first put on the market in 1903 (and named in honour of

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### REVIEW CONTINUED

Teddy Roosevelt, the American president) has followed essentially the same pattern as Mickey Mouse and other such anthropomorphic icons. The earliest ones in fact "looked like real bears, with low foreheads and long snouts" but then mutated in the marketplace, acquiring eyes "lower and lower on the face, creating a higher and higher forehead. At the same time, the long snout has been shortening [so that today the] teddy bear is an animal with a high forehead and short muzzle, quite unlike his forebears"—excuse Ingram's pun. The new teddy bear, in other words, is quite in keeping with the behaviourist Konrad Lorenz's observation that people like their toys and pets with large heads, high foreheads, big eyes, chubby cheeks, and clumsy movements—like a human infant. "A baby's survival," Ingram points out, "is, of course, enhanced if its physical features elicit feelings of parental protection and love." So, too, a teddy bear's.

There are modest nuggets like that throughout the book. (I especially like this footnote: "A parrot was observed to decrease its blinking rate from one every 17 seconds to one every 25 seconds while listening to a foxtrot—the significance of this is not yet known.") More importantly, there is a good bibliography for further reading, with the emphasis on current periodical material rather than other such books.

Popular science writing is conducted on a much higher plane in *Turbulent Mirror: An Illustrated Guide to Chaos Theory and the Science of Wholeness* (Harper & Collins, 222 pages, \$30.95 cloth) by the team of John Biggs, a well-practised contributor to American science magazines, and F. David Peat, formerly a member of the National Research Council in Ottawa. Seldom is such a rich and meaty book so accessible, though the premise, it's true, is one difficult to do justice to in such a small space.

The authors begin with the in-



formation that there is a new breed of scientists afoot who have embraced an idea that most ancients took for granted as part of their various cosmologies: that the universe is based on forces of chaos as well as forces of order. To such people, everything from freak occurrences in weather patterns to the role programmed trading played in the big stockmarket crash of October 1987 only illustrates "that order and chaos are dynamically and mysteriously intertwined." Or, as a University of California physicist and a Harvard medical professor put it in a joint article: "Most biological systems, and many physical ones, are discontinuous, inhomogeneous, and irregular. The variable, complicated structure and behavior of living systems seem as likely to be verging on chaos as converging on some regular pattern."

This view, which can be applied to many areas of study and so has an interdisciplinary following, seems to spring from very deep roots in oriental as well as western societies. The Old Testament, for example, puts forward the notion that all was chaos until God bestowed order. But Biggs and Peat are not promoting antiquarianism. On the contrary, they feel that the ascendancy of science in the 19th century bore the seeds not of its own destruction but of doubt about the supremacy of pure, logical thought as the mirror-image of what is always found in nature. Wasn't Einstein's work on black holes, they argue, an acknowledgment that the unpredictable and therefore, in a sense, unknowable, was a vital factor in the whole equation of time and existence?

It's no coincidence, in the authors' view, that such questions have begun to present themselves only since science began to acquire insight into atomic power. One can see the challenge that has been made to the once-dominant reductionist line of thought in the way that a holistic vocabulary has crept into modern science, replete with more guarded jargon. Scientists

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REVIEW CONTINUED

speak now of "useful models," "scenarios," and "creative possibilities." The last phrase, especially, underscores that the present attitude Biggs and Peat are trying to pin down is not pessimistic, despite science's reluctant admission that it is not divine in its omnipotent wisdom, but positive and up-beat, excited in fact. The authors' extensive bibliography appears to be full of strong connective tissue.

Some other new books worthy of attention:

*Ice Time: Climate, Science and Life on Earth* by Thomas Levenson (Harper & Collins, 242 pages, \$26.50 cloth) becomes more topical by the minute, as awareness of the greenhouse effect grows more acute, but it is not primarily a piece of doomsaying. Rather, it is a book that tries to bring together the current research in climate science, which is quickly going beyond the narrow concerns of weather as such to explore the ways climate interacts with the planet itself, and affects the way it works. Even without the global warming in particular, there is growing consensus that climate is not only interactive with the planet but ever-changing, that it is subject even to geopolitical considerations (as with the probable consequences of a nuclear winter) and so demands more than meteorology or climatology alone.

*Birds of the Kingston Region* by Ron D. Weir (Quarry Press, 608 pages, \$35.95 paper) is something of a regional bestseller but should be made known to the rest of the province and the country since it is a model of what field guides should be like, just as the Kingston Field Naturalists, the organization that produced it, could profitably be studied for its work in research and conservation. In all, 343 species of birds are to be found in the area, which is rich in wetlands, including 42 species that have been recorded there for the first time since 1973, when the book that preceded this one was revised. Some of the specifics may relate only to this part



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Établi 1956 Suisse

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of eastern Ontario, but the level of research, the presentation, and the design have broader implications.

*Cathedrals of Science: The Development of Colonial Natural History Museums during the Late Nineteenth Century* by Susan Sheets-Pyenson (McGill-Queen's University Press, 144 pages, \$24.95 cloth) is an interesting look at one of the unswept corners of the curatorial world: the way "colonial" museums in Victorian times were influenced, for better or worse, by European institutions, with European styles and standards. The aping extended from what specimens were collected and how, through administration and financing, down to acceptable details of museum architecture. The author looks at the American, Australasian, African, and Indian situations, and includes five detailed case studies: the Peter Redpath Museum in Montreal, two museums in Argentina, and one each in Australia and New Zealand.

*Metropolitan Mutations: The Architecture of Emerging Public Spaces*, edited by Detlef Mertins (Little Brown, 288 pages, \$34.95 paper), is two things: the proceedings of a conference organized by the Royal Architectural Institute of Canada and the catalogue of a travelling exhibition, with its heartbreaking then-and-now photographs of Canadian streetscapes and other visual confirmation of the themes taken up in the papers. This is a book rich in ideas about the way changing demands on space have led to greater density than is really consistent with the notion of the city as a place shared by all its residents. Contributors include such people as George Baird of Toronto, the person principally responsible for Harbourfront, and Phyllis Lambert of Montreal, the founder of that city's new Centre Canadien d'Architecture. But the whole country is covered.

*Reviewed by* DOUGLAS FETHERLING,  
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A wooden sculpture of a king, attributed to  
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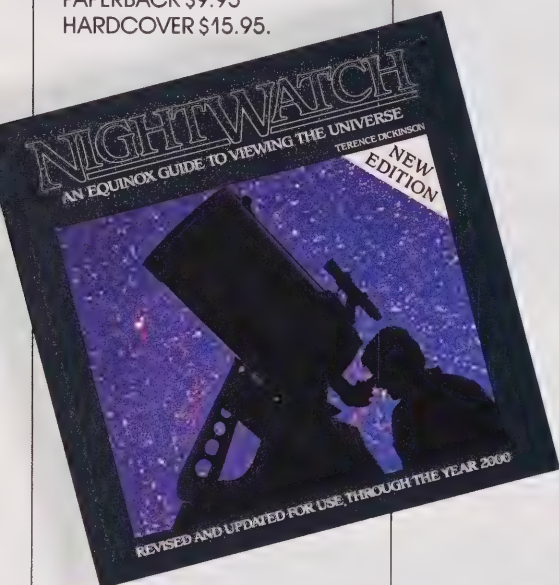
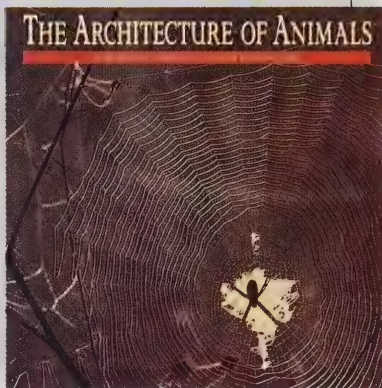
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## ❖ QUIZ ❖

JAY INGRAM

# Slipping the Surly Bonds of Earth or, It's a Matter of a Pinion

1. For a millennium (or two, if you believe that the Daedalus and Icarus myth was grounded in fact), humans have attached feathers, cloth, or paddles to their arms and have tried to fly. Yet the recent successes of man-powered flight have all come with aircraft that are pedalled. Why the switch from arms to legs?

2. The great physicist J. J. Thomson spent some time designing a laboratory version of the flight of an object that can be seen flying through the air all over the world, especially on weekends. As he reported in 1910, his apparatus demonstrated that the object in question could actually perform loops in the air if struck properly. What is the object?

3. In 1927, Dr. Charles Townsend reported in the *Journal of the New York Entomological Society* that while hiking at 3660 metres (12,000 feet) in New Mexico, he saw deer flies moving so fast they appeared to be nothing more than a blur. He estimated their speed to be 366 metres (400 yards) per second. Yet Townsend failed to report another phenomenon that he should have noticed if indeed deer flies were passing him at 366 metres (400 yards) per second. What would that phenomenon have been?

4. A witch on a broom surely must be the oddest design for human flight ever conceived. If we presume that witches really didn't fly on brooms, why was it commonly believed (even by those accused of witchcraft) that they did?

5. Given that it is impossible for humans to fly unaided, how is it that ballet dancers appear to defy gravity when they leap, hanging in the air much longer than would seem possible?



## THE ANSWERS

1. Leonardo da Vinci (and many others in the centuries after him) realized that human arm power alone wouldn't be sufficient for flight. Leonardo designed many of his flying machines with mechanisms using both arms and legs. Nevertheless, the history of attempted man-powered flights is littered with examples of those who leapt from cathedrals and castle walls, de-

pending solely on their arms. A lucky few survived—none flew. To fly like birds, we would need enormously expanded chest muscles to flap a pair of wings, and gigantic hearts to supply those muscles with energy. Birds like pigeons are essentially chests, wings, and feathers.

But it is possible to generate enough energy by pedalling to lift the right kind of aircraft off the

ground. These craft, like the one Greek cyclist Kanellos Kanellopoulos pedalled 119 kilometres from Crete to Santorini in April 1988, have extremely long wings and are very light. This craft, named *Daedalus*, after the legendary Greek inventor whose son Icarus flew too close to the sun, weighed just 32 kilos (70 pounds) but had a wingspread of 34 metres (112 feet).



## QUIZ CONTINUED

It was built mostly of balsa wood, carbon fibres, and plastic.

2. A golf ball. Thomson used a version of the experimental device that he had used to discover the electron to follow the path of luminous, charged particles that could be made to behave like miniature golf balls. These negatively charged particles were emitted from a piece of red-hot platinum positioned at one end of a glass tube from which the air had been evacuated. Electrical and magnetic forces applied to the particles in flight took the place of gravity and the upward force that backspin exerts on a golf ball. (A golf ball travels further when it's spinning backwards, because the air passing under the ball tends to lift it.) Thomson found that as he increased the effect of backspin, the ball started to follow very bizarre trajectories, at first rising sharply to a peak, then descending, and finally describing a

loop, or even several successive loops in the air.

3. Three hundred sixty-six metres per second (over 1300 kph, 818 mph) is faster than the speed of sound, and even though deer flies weigh a mere 0.3 grams, they should still create an audible sonic boom, just as a whip cracks when the tip reaches that velocity. Townsend reported no such sound. But that wasn't the only problem. In a devastating critique, the Nobel-Prize-winning chemist Irving Langmuir pointed out that a fly of even that small size, flying at that speed would, if it collided with the unlucky observer, "penetrate deeply into human flesh." Langmuir himself experimented by whirling objects the size of deer flies around his head, and found that they appeared as a blur at speeds of only 42 kph (26 mph). Langmuir, seemingly unsatisfied with merely destroying the story, added that if deer flies were to fly at the speed of sound,

the forces on their rather unaerodynamic heads would crush them.

4. Oddly enough, there exist very few reports from the Middle Ages of witches supposedly flying on broomsticks. The earliest is of the 14th-century Irish witch Alice Kyteler, who was described as possessing a broom on which "she ambled and galloped through thick and thin...having greased it with the ointment in her possession." Another good story is that of Julian Cox, an English woman who was tried for witchcraft in 1663. A witness claimed she had seen Ms Cox fly, but Cox countered by saying that she was innocent, although she had been tempted into witchcraft by three people who "came riding towards her, upon three broomstaves, borne up about a yard and a half from the ground." She was executed.

The flying ointment referred to in the Alice Kyteler story seems to be the key to witches' flying

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### QUIZ CONTINUED

proWess. Witches were supposed to be in the habit of smearing it on their bodies to allow them to pick up a broom and take off, and while the ointment was reputed to contain some grisly elements like the fat of young children, it definitely included extracts of plants like deadly nightshade, henbane, and hemlock. The psychoactive drugs atropine and scopolamine are found in nightshade and henbane respectively. These chemicals interfere with the normal action of the brain neurotransmitter acetylcholine, and can produce delirium, euphoria, and mental confusion, which could perhaps create the illusion that one has flown over hill and dale on a broom. It would be interesting to know if the commonly experienced dreams of flying represent some mental process that witches gained access to by using these drugs.

5. The "flight" of ballet dancers is an illusion. All great leapers are still the slaves of gravity. But they can *appear* to pause in mid-flight, something that is not physically possible. The secret is in the arms and legs. A dancer's centre of gravity (located somewhere in the torso) *does* follow the predicted trajectory through the air, a smooth parabolic curve. But a dancer can shift the position of that centre of gravity upward from hips to chest by lifting his or her arms and legs in mid-jump. The result is that even though the body's centre of gravity follows a curving path, the head and shoulders of the dancer can actually remain at a constant height for a moment. (If the centre of gravity could rise in the body at exactly the same rate that it rose in the air, the dancer's body could literally float in one place, but this rarely happens.) This effect, combined with the fact that the vertical motion of the dancer is actually very slight at the peak of the jump, gives the striking illusion that the dancer is hanging, motionless, in mid-air. ☺



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